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AUG 31 1921

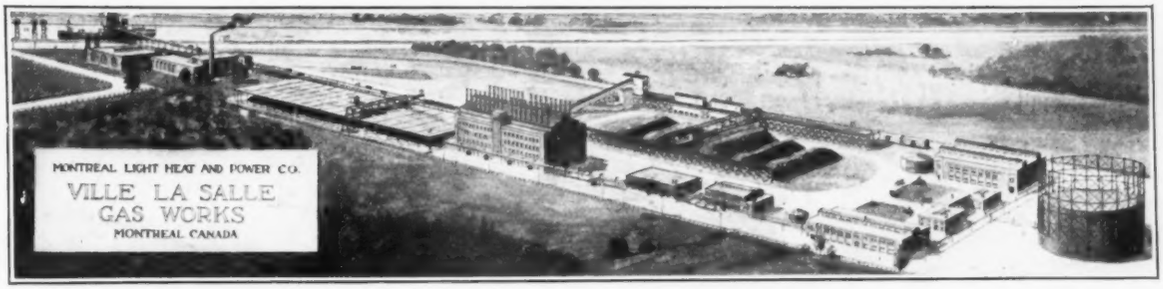
American
GAS JOURNAL
Formerly American Gas Light Journal
EST. 1859

VOL. 115, NO. 9
WHOLE NO. 3312

NEW YORK, SATURDAY, AUGUST 27, 1921

Subscription $3 per year
$4 Canada $5 Foreign

GLOVER-WEST
Vertical Retorts



Carbonize any coals without change in retort house routine

PROFITABLE USE OF GLOVER-WEST VERTICAL RETORTS IS NOT CONFINED TO THE LARGER PLANTS. SMALL OR MEDIUM-SIZED WORKS MAY GET THE SAME PERCENTAGE OF SAVING ENJOYED BY THE BIGGER WORKS, AND ON JUST AS CERTAIN A BASIS

WEST GAS IMPROVEMENT CO.
of America, Inc.
150 Nassau St. New York

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Household Garbage is an All-the-year-round Annoyance

The "Little Giant" is attractive in appearance—sturdy in construction

It is a positive menace in the warm months of the year, but even in the cold months it is a nuisance.

In many cities garbage is only collected once or twice a week, and every housewife is vitally interested in a safe, odorless and economical way of garbage disposal.

This makes the "Little Giant" Odorless Incinerator

an all the year sales proposition.

Its attractive appearance makes the first appeal. When the customer is shown that its operation is automatic and that it is absolutely odorless, sales are assured.

We want you to represent us in the community you serve and we have a very attractive sales plan for you.

Write us now.

Odorless Incinerator Co., of N. Y.

110 West 42nd St. NEW YORK

AMERICAN GAS JOURNAL. Aug. 27, 1921. Vol. 115, No. 9. Published Weekly by American Gas Light Journal, Inc., New York, N. Y.
Subscription Price $3 per Year; $4 Canada; $5 Foreign.
Entered as second-class matter Jan. 9, 1917, at the post-office at New York, N. Y., under the Act of March 3, 1879.

American Gas Journal
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Vol. CXV, No. 9 NEW YORK, AUGUST 27, 1921 Whole No. 3312

Gas Connections Under Pressure*

Such Connections Obviate Practically All Danger

By H. N. OSLER

Superintendent La Salle Gas Works, Montreal Light, Heat, and Power Company

The many advantages of making large gas connections under pressure must be apparent to all engineers; and while the writer believes that few such connections are actually made, he does not think that there are many that cannot be made with safety and without interrupting the flow.

Such connections properly made on distributing systems obviate practically all danger and escape of gas; also allow for continuity of supply, doing away with temporary supply mains, etc., which are particularly necessary in industrial sections. The practice carried out on high-pressure and on pumping mains should also be greatly appreciated, when it is well known that most of these lines cannot be shut off without considerable inconvenience and expense. Advantages to the works should be many, among which I might mention that the costly and dangerous practice of "shutting down" is overcome; also the fact that mains under high pressure are quite easily taken care of.

We have recently completed at the La Salle Gas Works the following connections, all made under pressures varying 25 in. to 40 in. water column, without interfering in the least with the gas flow or normal working of the plant:

Extensions to two 30-in. flanged purifier headers; 24-in. vertical offtake from 36-in. holder inlet main; 24-in. extension to 36-in. flanged meter header; two 24-in. outlets from 24-in. crosses, with bells and leaded plugs.

Extension to 30-In. Purifier Headers

The installation of an additional 5,000,000 cu. ft. capacity purifying unit made necessary an extension to existing headers. These headers consisted of 30-in. cast-iron flanged pipes, the end of each being blanked with a cast-iron flange, and the difficulty of removing the blank flanges and replacing with 30-in. valves without "shutting down" confronted us. Incidentally, I might mention that about 40 in. pressure was then carried on these lines; existing purifying plant was overloaded and could not be by-passed, and entire works was running to capacity, so that we could ill-afford a "shutting down," which would also mean the loss of considerable gas owing to the fact that should exhausters be closed down our vertical retort system would still continue to give off gas, which would have to be blown to the atmosphere—a dangerous practice. The customary use of bags or stoppers with bleeder pipes, etc., could not be considered on account of high pressure, so that it was decided that these valves would have to be put on with the lines "alive," and the work was carried out as follows:

A 30-in. Isbell-Porter standard gas valve was lowered down opposite the blank flange, with the gate opened and a timber passed through the opening which securely braced the blank; this held it in place while all bolts were removed, and, using the same holes, the valve was bolted on with a proper gasket and made gastight. A boring bar keyed to cutting tool was then placed through the valve against blank, the end of the boring bar projecting past the cutter carrier with an upset end which fitted into a split hollow collar fastened to blank with tap bolts.

The object of this fitting was to form a rest for boring bar and to enable the operator to withdraw the portion cut out. It will be noticed that sufficient play was allowed for the advance of the tool while cutting.

A bonnet forming a chamber, and made from a piece of 30-in. pipe fitted with stuffing box, was then attached to valve, and rods supporting a feed screw completed the outfit with the exception of the "drive." For this a discarded worm drive was used, the gear being attached to boring bar with a feather, thus allowing for the feed. A small motor furnished the power, the speed of the cutter being about one revolution per minute.

This layout provides a gastight chamber in the front of the work, so that when the flange has been cut through the piece may be withdrawn, together with the cutting tool, clear of valve gate into chamber, where there is sufficient clearance for the same. The valve is then closed and the work is completed, the outer ring from the original blank, of course, remaining in place. The work was carried out during the working hours of one day with complete safety, without any leakage, and the outfit worked very smoothly.

All the apparatus was made on the works and is being held over for other work. The boring bar was made from an old discarded shaft; the cutter carrier consisted of a worn-out cast-iron spur gear, the teeth being turned off and six cutters ½ in. in width dovetailed into outer edge and made sufficiently long to cut through the casting before carrier touched. The worm drive was taken from an old elevator hoist and

*Paper presented at Canadian Gas Association convention.

the 2-h.p. motor had been in use on a Kewanee deep-well pump.

Incidentally, I might mention that hand power could have been employed, using suitable gearing and ratchets. This method would have been much slower, but might be used on outside distributing mains where electric power is not available.

24-In. Vertical Offtake from 36-In. Main

Our next difficulty was in making 24-in. inlet and outlet connections to a new 6,000,000 cu. ft. meter, and it was decided that the outlet one should be done first. Ordinarily this would have meant the installation of a 36 by 24 in. branch, with 36-in. slip sleeve, bags, bleeder pipes, etc., and "shutting down," there being no by-passes, so that a split sleeve with bell ends and 24-in. flanged outlet was made.

This fitting had side flanges machined and was made with caulking space under neck of outlet and installed with side flanges, metal to metal, with thin lead putty joint (no gaskets); the bell ends were run with lead and caulked, as also was the recess under the offtake. This precaution prevented any escape of gas around body of the pipe, so that end joints simply held casting in place. A valve was next bolted to the outlet and the work done as on the 30-in. header described above.

A different type of cutting tool, however, had to be made with cutters long enough to clear the arc of pipe, and a drill was fitted to end of boring bar. The shank of the drill was equipped at the proper distance with two dogs and closed with a loose collar. The object of the drill was to first cut a hole in the pipe before main cutter touched, so that as tool was fed through the dogs entered the hole, the collar was pushed back, and they spread and held piece from dropping when cut, insuring the extraction of same.

24-In. Extension to 36-In. Header

The 36-in. existing meter header ended with a blank flange which was heavily webbed on the outside. These webs were cut off and the valve attached with stud bolts. The same outfit used on the 24-in. offtake branch was then attached and cutting done as before.

24-In. Outlet from 24-In. Cross

The addition of a new 5,000,000 cu. ft. Livesey washer made necessary an outlet from an existing bell cross with leaded plug, so that a special casting was made to slip over the bell and was leaded on. This allowed us to attach valve and proceed with the job, the spigot end of the plug, of course, remaining in place.

Another 24-In. Outlet from Cross

The outlet of the washer mentioned was connected to another cross, but in a more simple manner, and was made with the use of thin blind flange; and, being connected to a by-pass line, the flow was not interrupted. The original installation having flanged joint, all bolts, with the exception of the lower four, were removed and gas held back by valve. Jacks were inserted and by-pass line sprung back, the lead joints giving plenty of latitude for this, the remaining bolts, of course, being sufficiently loosened. Blind flange was quickly inserted in slot, bolts tightened, leaded plug removed, and work completed with 25 in. pressure behind the blank.

The question of the cost of doing this work probably will be raised. In each case a valve was necessary for the apparatus later installed, so that its cost was not additional; and, its exact location being immaterial, it was placed next the existing mains.

The cutting outfit for different sizes of mains may be made cheaply, one boring bar and set of cutters being made interchangeable for all sizes, with cutter carrier and bonnets of various diameters as required.

Of course, the use of valves is necessary in doing the work, and it may be that where one is not absolutely necessary the method may be considered expensive, and this expense would have to be weighed against advantages gained. These we have found numerous.

When Catasauqua Got First Gas Street Lights

Under date of Feb. 11, 1856, a Catasauqua, N. Y., correspondent sent the following to the *Lehigh Register*, of Allentown, Pa.:

"To-morrow heralds in an epoch in the history of our borough, for to-morrow night for the first time our place will be lighted by gas. We look for a speedy banishment of sundry greasy candles, oil cans and superannuated lamps. We have no idea in being one jot behind our neighbors in anything that goes to build up. In fact, when we consider the age of our place we are somewhat disposed to turn braggart over her, for a place she is now only in her teens—not yet of age—and three years have not yet passed since she stepped from her cradle and made debut, a borough among boroughs; too young by far to settle down into humdrum sameness. The past twelve months has been with us an epoch of epochs. It has witnessed the completion of the railroad by the place; the completion of a fine church, and the introduction of said gas. Moreover, it has witnessed the commencement of a railroad from this place to Fogelsville, for the purpose of conveying one from thence hither, and, although this is a local affair, nevertheless, if, when the road is finished, you will make us a visit we promise you the aid of our influence to procure for you a deadhead ride on it."

(The correspondent refers to the building of the Catasauqua & Fogelsville Railroad, now a branch of the Philadelphia & Reading.)

In connection with the above, the following is of interest:

Section 1.—Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met, and is hereby enacted by authority of the same, That the time fixed by the act incorporating the said company as a plank road company approved the fifth day of April, one thousand eight hundred and fifty-three, for the commencement and completing the said work, is hereby extended three years.

Section 2.—That the said company may at any time extend its railroad or construct a branch therefrom so as to connect with the iron ore mines in Long Swamp Township, Berks County.

Section 3.—That the rate of tolls which the said company may charge and receive for each ton of two thousand pounds of freight transported over their road shall not exceed five cents per mile.

The Indeterminate Franchise

An Argument Against It That Seems Unanswerable

By J. W. DANA, Kansas City, Mo.

The expression "indeterminate franchise" is a most unhappy coinage to convey the idea we are considering. The word "indeterminate" has no well-defined technical or legal meaning. An indeterminate equation in algebra is one having so many unknown quantities that it cannot be solved. An indeterminate residence is a floating abode, meaning none at all. An indeterminate sentence in criminal law is one in which the judgment of the court fixes the minimum and the statute fixes the maximum period of confinement. The word is not found in law dictionaries or encyclopedias. Until the Wisconsin legislature coined the phrase it was regarded altogether too uncertain to use in legal parlance. It means not settled; not definite; uncertain. "The greatest part of the questions and controversies that perplex mankind depend on the doubtful and uncertain use of words, or, which is the same, indeterminate ideas, which these are made to stand for."—Century Dictionary.

J. W. Dana, the author of this paper, is an attorney of high standing in Missouri. He has been engaged in gas litigation for the past ten years, and his word carries great weight. It must be evident to even the most casual reader that he has made an exhaustive study of franchises. The paper was presented before the Missouri Association of Public Utilities.—Editor.

Mr. Clark, of the Indiana commission, says that it is "merely granting a place to conduct a business." The Supreme Court of Wisconsin defines it as a perpetual franchise, subject to the conditions and limitations of the statute in which it is used. It is obvious that the word "indeterminate" has no particular meaning except in connection with the statute in which it is used, and is more likely to conceal than reveal the thought in mind, if any. This unfortunate term has doubtless been largely responsible for the sloth in which the public and its representatives in the legislatures have accepted the proposition.

The word "franchise" is also an unfortunate term. There are all kinds, makes, brands, styles, fashions and forms of franchises. There is the franchise *to be a corporation* and carry on certain lines of business, known as a primary franchise, derived directly from the State. Then, there are numerous grants, both to corporations and individuals, directly from the State or indirectly through the subordinate agencies of the State. These are classed as secondary franchises. Then, there are a great number of individual and personal rights, such as the franchise of sufferage, the franchise of free speech and the press, and others. But all are presumed to be derived directly or indirectly from the sovereign. In the popular mind the word "franchise" carries an *indeterminate* idea—vague, intangible and inarticulate, but always supposed to be of very great value and carrying special privileges and powers to the party to whom granted. Therefore it must be taxed heavily, and great and valuable consideration must be demanded for it and its use must be carefully restricted, limited and regulated to prevent abuses. Now, all this is imagination, pure hocus-pocus, and results in crippling essential industries, impairing the service to the public and reflecting higher rates than necessary.

Right to Do Business Is Derived Directly from the State

Now, the right to be a corporation and carry on a public service business is derived directly from the State. The municipalities and subordinate agencies of the State have no power, jurisdiction or authority to confer or deny, enlarge or diminish that primary franchise right. The right of the public utility corporations of this and every other State to furnish to the people of the State and the general public, utility service is a primary franchise right conferred directly by the State for the purpose of carrying on the State function of furnishing public utility service. This right is in no legal sense derived from the municipalities of the State. The State is the real party in interest, the primary party interested in the development and growth of its public utility industries and the maintenance and continuity of its public service and the reasonableness of the rates charged. In contemplation of law this public utility business is a sovereign State function, and the furnishing and maintenance of public utility service is a duty the State owes to its citizens at large; of the entire State, not merely those who happen to be permanent inhabitants of the city where the utility is doing business. It is a "public use." It is only upon this theory and ground that the State, either directly or through its municipalities or administrative commissions, can condemn and take, either by the exercise of the power of eminent domain or the police power of rate regulation, the property of a public utility or the use thereof. Rate regulation is taking

the use of property. The right to use the public ways of the State and its municipalities in the carrying on of a public utility business may be a part of the primary franchise granted direct by the State, or it may be a right conferred by general statute or special act or such right may be a secondary franchise conferred by the State indirectly through the act of a political subdivision of the State by authority conferred upon such political subdivision by the State.

It is this latter right which is known as the "indeterminate franchise."

Now, in order to get a clearer idea of the thing let us frame language which would confer the right. If it were the direct act of the State it would read as follows:

AN ACT
RELATING TO THE USE OF PUBLIC WAYS BY PUBLIC UTILITIES

Be it enacted by the General Assembly of the State of Missouri, as follows:

Section 1. That all public utilities as now or hereafter defined by the laws of this State are hereby authorized and granted the right to use the public ways of this State and the municipalities in which they are or may be doing business for the purpose of discharging their duties as public utilities.

If it were a municipal ordinance passed by authority of the legislature it would read as follows:

AN ORDINANCE
RELATING TO THE USE OF THE PUBLIC WAYS BY PUBLIC UTILITIES

Be it ordained by the Mayor and Common Council of the City of Hope, as follows:

Section 1. That all public utilities as now or hereafter defined by the laws of this State doing business in this city are hereby authorized and granted the right to use the public ways of this city for the purpose of discharging their duties as public utilities.

We might add to either of these, "during good behavior and subject at all times to regulation, supervision and control by the duly constituted authorities of the State, and subject at all times to the right of any such municipality to acquire such public utility in such manner as is or may be provided by law and subject also to the penal and criminal statutes of the State now or hereafter enacted." We might go on ad infinitum adding other provisions; but all this is pure make-weight, neither adding to nor detracting from the right to use the public ways granted by the State, nor enlarging or diminishing the sovereign powers inherent at all times in the State to regulate, supervise and control its utilities, their rates and service by the duly constituted authorities of the State; or to condemn, take and acquire such public utilities; or to oust them from the streets on account of bad behavior and default in the discharge of their public duties. Such sovereign powers are not only inalienable as a matter of general law without specific authority, but they are specifically reserved inviolate by the Missouri State constitution.

"Indeterminate" public utility bills have been introduced in almost every session of the Missouri Public Service Commission acts, but they are so long and cumbersome, and carry so much superfluous, immaterial and indeterminate verbiage, that they have usually "died in committees" for want of proper understanding of their merits.

Such bills (aping after the Wisconsin act) usually provide for surrendering franchises, rights, special privileges, etc., held or supposed to be held by the public utilities. These are altogether unnecessary under the Missouri constitution because of the specific reservations of the power of eminent domain and the police power contained in the Missouri constitution. But they have created a mysterious fear, an indeterminate idea, on the part of some public utilities that they may lose or forfeit something of value they already have. Now, the simple, naked, legal constitutional truth is that no public utility in the State of Missouri, or in most any other State, has or holds, or ever did have or hold, any special privilege, contract right or valuable interest exempting it from the exercise of all the sovereign powers of the State, such as rate regulation, the power of eminent domain, taxation, and the civil and criminal jurisdiction of the State, for the reasons above stated.

While it is possible for a State, either directly or through its municipality duly authorized, to suspend temporarily by franchise contract a sovereign power, such as the power of eminent domain, the power of taxation or the power of rate regulation, such contract must be expressly authorized by the legislature, it must not be prohibited by the constitution, and it must be in clear and concise language admitting of no doubt. To doubt either the constitutional power, the statutory delegation thereof, or the municipal exercise of that power is to deny it. The result is that there are very few such contracts. None whatever in Missouri, because of the constitutional limitations above referred to.

It follows that all municipalities and public utilities in Missouri, and most such cities and companies elsewhere, fondly cherishing the delusion that they have some franchise contract right or special privilege relating to rates, service, taxes or the municipal acquisition of the plants, are scheduled for a rude awakening and will on final test find such franchise grants *ultra vires* and void.

With the foregoing clearance of the underbrush, let us take a square look at the thing we are talking about. What is it more or less than the perfectly normal right, common to all alike, except a few public utilities, to use the public ways in a perfectly proper, normal and legitimate manner in the carrying on of an authorized legitimate business; aye, more, an essential industry, done and carried on for and on behalf of the State in the performance of one of its duties to its citizens? In other words, merely the proper use of the public highways.

The old notion that the use of the public streets and highways is something to be bought and sold, bartered and traded for, and auctioned off to the highest bidder: something from which the public can economically or legitimately realize an income or profit from an outside source, is altogether erroneous, unsound economically and legally, prejudicial to the growth of the community and discriminatory against one class of citizens and preferential in favor of another.

Every dollar exacted or burden imposed upon the use of the public ways reverts back upon the public interest and costs. It is a wrong conception of the purpose of public highways. "A public road, as a way of traffic and transportation, must, so far as possible, meet the demands of the people, and is subject to be used for such purposes by any means not destructive of its use as a public thoroughfare. When such ways first came into use the means of travel were on foot or on the backs of beasts; later, articles of traffic were transported by wheeled vehicles drawn by horses and oxen, and that is the general method employed to-day. It could not, however, be held that the highway could not be used for the transportation of passengers and for traffic by automobiles. . . . The transportation of commodities on the highway is one of the uses for which it has always been maintained. The means, however, used by the gas company in the transportation of its gas are exceptional. A demand for this method has not heretofore existed in this State; but shall this fact alone deprive the defendant of the use of the highway for a usual and proper purpose, unless such use necessarily obstruct, seriously inconvenience or endanger public travel?" "The use of a rural highway by a telephone company is not an additional servitude for which the owner of the fee can recover compensation." "It is variously defined or held to be for passage, travel, traffic, transportation, transmission and communication. . . . The use is not to be measured by the means employed by our ancestors or by the conditions which existed when highways were first devised. The design of a highway is broad and elastic enough to include the newest and best facilities of travel and communication which the genius of man can invent and supply." "The public highway is maintained for the transportation of the commodities of the country, and the means employed for such purpose need only be such as not to interfere with public travel to the extent hereinbefore stated."

Have we not reached that state of civilization where we can think of public highways in terms of the "public use," "public service" and "public welfare," and not with reference to petty political power, "home rule" jealousies and class prejudice? Have we not advanced far enough to look the truth in the face, clear away the camouflage and high-sounding meaningless verbiage, such as "indeterminate franchises," and call this thing what it really is, merely street rights—indefeasible street rights? We can all recognize it by that name.

When the State has created and maintains at great public expense a public service commission and staff of assistants and experts clothed with plenary power to regulate and control public utilities, their rates and service, and has divested municipalities of all such power and has required that commission to fix and establish reasonable rates and provide for continuous and efficient service, it is time the State should recognize, if it has not already done so, the proper use of the public ways by public utilities in the discharge of their public functions. In fact and in constitutional law the whole scheme of rate regulation is futile without indefeasible street rights, for the abvious reason that a public utility is entitled to amortize its investment out of earnings during the life of its term franchise for the reason that it has no assurance and no power to enforce the renewal of its term franchise at the expiration thereof; whereas, a public utility operating under indefeasible street rights is entitled to earn only a fair return upon its investment, resulting in lower rates.

Now, having come to recognize this right in its true and simple sense, let us point out its merits and demerits, if any.

It may be defined as a mere right to use the public ways in the discharge of an essential industry during good behavior and subject to all the laws of the State until condemned or acquired by the municipality.

It is a right enjoyed by all other persons, natural and artificial, including railroad, express and Pullman companies, telegraph companies, telephone companies, ferries, pipe line companies, bridge companies, stage coaches, bus and hack lines, jitneys, innkeepers, hotels, banks, insurance companies, elevators and warehouses, newspapers and stockyards, of conducting a "business affected with a public interest," a public utility business subject to State regulation, all enjoying the common use of the public ways in the carrying out of their business. No other business is under such a handicap. Imagine all these industries coming to the cities asking the right to use the streets and continue business every few years! It is just as reasonable, and more so, for the losses and injury to the public would not be so great.

It has been adopted in Wisconsin, Massachusetts, Indiana, Michigan, Arkansas, District of Columbia, Porto Rico, the Philippines, and all United States Government grants, and State grants to statewide utilities, such as telephone and telegraph companies.

It is in line with the progressive thought of the times and has been recommended by public service commissions in practically all States, including Missouri, and by engineers, economists and financiers.

All Public Grants Are Perpetual

All public grants, either by the Federal Government, the State or its political subdivisions, made without time limit, are held by the courts to be perpetual or indefeasible on grounds of public policy to avoid the confiscation of property and impairment of vested rights. "To say that the right to maintain these appliances on the public ways was only a license which could be revoked at will would operate to nullify the charter itself and thus defeat the State's purpose to secure a telephone system for public use. For manifestly no one would have been willing to incur the heavy expense of installing these necessary and costly fixtures if they were removable at the will of the city and the utility and value of the entire plant be thereby destroyed. Such construction of the charter cannot be supported either from a practical or a technical standpoint."

The term franchise is an economic waste, permitting the destruction of the property at the end of the term; the tearing up of the public pavements and ways; requiring high interest rates for investments; drives capital out of the industry and requires high utility rates to the consumers to amortize the investment during the term; all theoretically *pro bono publico*, but the consumer "pays the freight" with interest and costs.

On the other hand, normal or indefeasible street rights avoid all this waste. It is economically sound,

(*Continued on page* 191.)

Sulphur Removal by Oil Washing

Results Obtained at Halifax, Nova Scotia

By E. R. HAMILTON

Superintendent Nova Scotia Tramways & Power Company, Limited

A year ago at the meeting of the Canadian Gas Association it was stated that if the laboratory results on oil washing for sulphur removal were borne out in practice the sulphur problem at Halifax would be solved. In a preceding paragraph of that paper a number of anticipated difficulties were pointed out. The results of actual experience have shown that some of these were real, while others have proved to be negligible and in their place new difficulties have developed.

Mr. Hamilton relates in this paper, which was presented at the Canadian Gas Association convention, the results obtained in removing sulphur by oil washing. The description of the method used will prove particularly interesting.—Editor.

The equipment used at Halifax for oil washing is practically the same as originally planned. There are three steel tower scrubbers, four feet in diameter by sixteen feet high, connected in series by twelve-inch pipe. These at first were entirely filled with wooden grids, but now part of the wooden grids have been taken out and excelsior substituted, so that each scrubber has four layers of excelsior about twenty-one inches deep carried on wooden grids twelve inches deep, giving a total depth of scrubbing material of eleven feet six inches. By the substitution of excelsior for the wooden grids it is estimated that the scrubbing surface has been increased over three times the original area of 3,000 sq. ft. per tower. The oil is circulated through the towers by means of small, electrically-driven gear pumps. It was planned to recirculate the oil in the first two scrubbers to the full capacity of the pumps, but the results proved this to be bad, for saturated oil was brought in contact with partially purified gas and the absorption was reversed. To avoid this dumping boxes were arranged for each scrubber in order to give sufficient volume of oil to obtain an intermittent spray, and the oil pumped to each of them successively. The rate of flow of oil is controlled by an orifice on the discharge pipe from a small tank directly over each dump box. The pumps deliver an excess of oil, which flows back to the receiving tank from which it was pumped, and in this way a constant head is kept on the orifice and the operation of the pump observed.

The oil used for washing is refined from a paraffine base crude, and is sold under the trade name of "pale paraffine oil." While this is a high grade lubricating oil, our laboratory tests have shown that its absorption capacity for carbon bisulphite is equal to that of kerosene, gas oil or crude oil which, because of our geographical location, would cost us practically the same. The slightly heavier body makes it easier to pump. The freezing point is 26 deg. Fahr., or practically the same as that of gas oil or straw oil. Another factor about this oil which is particularly desirable is that it does not easily emulsify. Only once during the past six months have we had trouble with an emulsion, and that we believe to have been due to stirring up a large amount of fine carbon, which had been deposited in the oil by the tar still, while repairing one of our storage tanks. This carbon apparently acted as the necessary agent to bring the oil and water together, but the regular steam distillation of the oil was sufficient to separate them.

After passing through the scrubbers the oil is collected in a receiving tank near the still until there is sufficient to handle. As was stated a year ago, it was thought that the dehydrating and dephlegmating column on the tar still would prove large enough to drive off all the carbon bisulphide, and this has proved to be the case. The column is three feet in diameter by nine feet high, and consists of five sections. The three lower sections have steam coils, and in addition to these there is a live steam connection into the middle section above the level where the saturated oil is admitted. Steam at 127 lb. pressure is used on the coils in addition to the small quantity of live steam admitted. The live steam serves to reduce the vapor tension of the light oils that have been picked up in the wash oil, so that distillates up to 140 deg. Cent. are given off as well as carbon bisulphide. The upper part of the middle section and the two top sections form a dephlegmator in which the vapors and steam are reduced in temperature to 210 deg. Fahr. and then pass to a water-cooled worm-condenser. A vertical vent pipe connected at the inlet of the condenser takes away nearly all the carbon bisulphide, so that we obtain a fair grade of crude benzol after separating it from the condensed steam.

The production of benzol amounts to about half a gallon per ton of coal carbonized. While this figure is low, it does not represent an attempt on our part to extract benzol primarily, and our yield is subject to considerable fluctuation, depending upon how fast and at what temperature we distill the wash oil. Generally, the wash oil is pumped through the still at 300 gal. per hour, and is raised in temperature to 270 deg. Fahr.

The operation requires the attention of one man for about four hours to handle a batch of 1,000 gal of oil. This time includes the preliminary warming up of the still and pumping a finished batch to the redistilled oil storage tank. The main body of the tar still serves as the first receiver of the distilled oil, which is allowed to stand in here for twenty-four hours to effect a partial cooling.

Temperature Control a Difficulty

The chief difficulty with the whole oil washing process has been in the temperature control. Due to the high vapor tension of carbon bisulphide the temperature must be kept down. The best operating condition would be 60 deg. Fahr. or under if it were possible. In fact, our best results have been obtained in the fall and spring, when the uniform atmospheric conditions served to reduce our cooling problems to a minimum. In severe winter weather the oil tends to freeze, while in summer it is too hot to be effective. To overcome this we have housed the scrubbers and installed heating coils for cold weather and evaporating cooling coils for the oil in hot weather. We have found that the temperature control of both oil and gas must be regulated to one or two degrees. In no other way are we able to account for the variable results in the efficiency of the absorption. Very often we have found that the process has reversed and carbon bisulphide has increased because of a rise in temperature combined with a variation in the mixture of the coals being carbonized. Some of the best absorptions have occurred when the carbon bisulphide has been exceptionally high, so that in this respect the process has acted as a balance wheel and equalized as well as reduced the sulphur content of the gas.

The rate of flow of the oil affects the absorption but not as much as the temperature. We have varied the rate from 1.5 gal. to 7.5 gal. per thousand cubic feet of gas and have obtained good and poor results with all. The best absorptions have been obtained with an increased flow of oil, but this necessitates an ample supply of oil, added work in distilling it, and much increased capacity for cooling it. The results indicate that eight or more gallons per thousand are essential to obtain a 50 per cent reduction in the sulphur content at the ordinary temperatures—that is, from 70 to 75 deg. Fahr.

We have not found that there is any serious reduction in the heating value of the gas due to the scrubbing. The maximum effect occurs when fresh oil is introduced into the system, and then the reduction may amount to from twenty to twenty-five B.t.u. until the oil has become saturated. The rapid distillation of the wash oil tends to leave considerable toluol and benzol in it, so that its stripping effect on the gas is very much lessened.

It is our experience that the Cape Breton coal breaks down into naphthalene very easily under our system of carbonization. With a temperature of 2,100 to 1,800 deg Fahr. from the bottom end to the top end of our inclined retorts there is a strong tendency to form naphthalene. The oil washing system has been a very decided help in overcoming this trouble and allowing us to raise our temperature in the retorts and increase our yield from this coal by over 10 per cent. Sufficient naphthalene is distilled over with the light oils so that the wash oil remains practically uniform in composition, showing no sign of thickening or sludge. It was thought that the excelsior in the scrubbers might act as a filter to accumulate naphthalene sludge, but there has been no indication of this after four months' continuous operation and the back pressure has not increased.

Because of the naphthalene which is carried over in the steam distillation with the crude benzol we have found it desirable to mix with it an equal volume of gasolene before using it for motor fuel. Previous to mixing we found that in cold weather the naphthalene would crystallize out in the feed pipe, particularly in the vacuum feed type of carbureter, and shut off the supply to the engine. The mixture of gasolene and crude benzol with a properly adjusted air supply to the carbureter has proved to be very satisfactory.

Considerable mechanical loss of wash oil has taken place, but this has been largely overcome by careful inspection of joints and stuffing boxes. Fresh oil has been added from month to month to make up for the losses, but it has not been necessary to redistill or filter any of the wash oil because of accumulated heavy oils or naphthalene sludge, as had at first been anticipated.

The expense of operating this sytsem has been high, but it has not required the extensive plant necessary for the catalytic system nor the constant attention of an operator. During the past ten months we have put through the scrubber 70,000,000 cu. ft. of gas varying in sulphur from 35 to 160 gr. per 100 cu. ft. The reduction has been from 5 gr. on the first to 60 gr. on the latter with an average flow of oil in each case of 4.5 gal. per thousand cubic feet of gas. As has been pointed out, the results have been irrgular, but this may be accounted for by the temperature control upon which we are still working. During the ten months we have used up 3,000 gal. of wash oil and have obtained as a credit against this 3,000 gal. of crude benzol. The power required to drive the pumps amounts to one kilowatt and the steam consumption for the still and pumps to handle the oil in storage amounts to 1,400 lb. per day. The average expense per thousand cubic feet of gas based upon the figures for the month of June is 3.34 cents, including labor, power, steam and oil losses, against which we have a credit of 1.53 cents per thousand cubic feet of gas for crude benzol, making the actual cost 1.81 cents without interest and depreciation charges. As this is figured on a month of low productons 6,870,000 cu. ft. and the oil loss charged is pro-rated for the ten months and represents nearly 50 per cent of the expense, it is evident that considerable reduction is possible in the cost with increasing send-out and smaller oil losses.

The Freezing Point

Our laboratory tests show the freezing point of fresh wash oil to be —3 deg. Cent., and after continued use and redistillation it decreases to —5 deg. Cent. The specific gravity of this oil is 0.885. We noted a change in the oil after repeated use due to the absorption of some of the heavier vapors from the gas which have not been entirely driven off by the steam distillation. There is also a distillation of the wash oil as it comes from the scrubbers saturated with light oils. There is a gradual increase of the absorbed light oils in the wash oil as it passes successively through the threee scrubbers. Analyses of the wash oil to determine the increase in sulphur have not proven satisfactory because the different methods employed have not checked well against each other. The combusion method with sodium peroxide has shown 0.303 per cent sulphur in the fresh oil, 0.347 per cent sul-

(*Continued on page* 189.)

Results Secured at St. Thomas, Ontario*

A Comparative Statement That Is Startling

By R. CHRISTIE
Superintendent Gas Department, St. Thomas, Ontario

For several years the St. Thomas Municipal Gas Plant has been in a very bad condition, due to inexperienced supervision, failure to follow expert advice, and to the attitude of former gas committees, who appeared to expect results irrespective of the operating conditions. In January, 1920, an entirely new committee of business men were appointed, and they immediately went thoroughly into the question of placing the department on a proper operating basis. Frederick Burnett's advice was sought, and on his recommendation I was asked in May last year to go to St. Thomas and endeavor to put the plant and distribution system in efficient working condition. My first impression of the plant was that the scrap heap was its logical destiny. I found later that this was the opinion of the former chairman of the committee, the superintendent, the press and the general public, but today they are beginning to change their views.

A short description of the plant as I found it will be of interest.

This paper proves the value of the human element in the supervision of gas plants. The comparative statement given near the close of the paper is the best evidence of what can be accomplished. Mr. Christie is to be congratulated, as are the people of St. Thomas.—Editor.

Retort House

This building contains six benches of half-depth sixes, each of which has a separate hydraulic main. A Merrifield-Westcott-Pearson carbureted water-gas set, with a daily capacity of 450,000 cu. ft., purchased from the Brantford Gas Company, and erected by the Economical Gas Apparatus Construction Company in June, 1920.

The Exhauster House

Contains two exhausters, a station meter and a booster.

The Condensing Equipment

Consists of one primary multitubular air-cooled condenser and one secondary multitubular water-cooled condenser, a P. and A. tar extractor, immersion washer, and two tower scrubbers.

Purification

Is taken care of by two round steel purifiers, 15 x 12 ft., erected in the yard adjoining the old purifying room, in which is contained a set of four small cast-iron purifiers.

Storage

There are three holders, with capacities of 204,800, 31,000 and 12,600 cu. ft. respectively, making a total capacity of 248,000 cu. ft. The smallest one is used as a relief holder for water gas.

Beginning at the retort house, I found the benches being operated in the crudest possible manner, which might have been allowed thirty years ago but was entirely contrary to modern methods. It was quite apparent from a superficial observation that while the stokers were doing their work as well as they knew how, there was a deplorable lack of knowledge of the fundamental principles of the operation, particularly with respect to the theory of combustion and correct temperatures for efficient carbonization.

The heats in the benches were very irregular, and each shift boss made adjustments of the air dampers whenever he thought it necessary, or somewhat like the Roycrofters, who used to print the "Philistine" every little while. There being three shift bosses every twenty-four hours, one can readily imagine how such irregular control of the air dampers affected the heats.

Most of the furnace charging door frames were warped, and some doors missing, admitting large quantities of air over the fire where it should have been rigidly excluded. Every one of the thirty self-sealing mouthpieces on the five benches leaked when the lids were closed, and fire clay was used after each charge to prevent the escape of gas.

There were no means of ascertaining the vacuum of the foul main on benches except in the exhauster room, a long distance away, where the gauge indicated 6 in., which was much higher than should have been necessary; but the piping, etc., between the retorts and the exhauster was so clogged that it resulted in the gas being forced through the retort walls into the combustion chambers, flues, and out of the mouthpiece lids' joints, with a resultant low yield per ton of coal carbonized. Conditions on top of the benches were no better; all valves on tar and

*Paper presented at Canadian Gas Association convention.

liquor overflows were closed, hydraulic mains out of level and nearly filled with tar and pitch. This latter trouble had been caused by using cold city water instead of weak liquor. It was impossible to move the seal valves, as they were covered with tar and dirt. The foul main was a series of wave and was two-thirds full of tar.

As every bench had an individual hydraulic main, it was a simple operation to correct the difficulties in each separately. Having shut the valve on the offtake pipe to foul main, the standpipe joints on the mouthpieces were picked out, the main leveled, and the seal valves removed, cleaned and repaired. While this was being done the hydraulic main was thoroughly scraped out and flushed, the seal valve replaced, and the bench again put in operation, with only a few hours' lost time.

Immediately a bench was overhauled the heats were properly adjusted and the stokers informed that any interference with the adjustments would render the offender liable to instant dismissal.

All five benches were overhauled in this manner, and when completed the seal valves were correctly adjusted.

The use of city water in the hydraulic mains was discontinued, and an old ammonia pump was connected to a line from the ammonia well.

The leveling of the foul main was a more difficult problem, as it was necessary to avoid any interruption in the service. It was accomplished, however, in a reasonably short space of time. The joints in the offtake pipes were picked out, and by using six chain blocks, with a man at each, the main was gradually raised to a proper level and fastened by hangers to the roof of the retort house. Previously it had been supported by brick piers which were built in most cases on the center of the bench arch, resulting in a depression of top of the benches, in one case fully 9 in.

Educating the Stokers

Having put the retort house in fair operating condition, it became necessary to educate the stokers respecting the proper methods of cleaning and firing the producers and charging retorts. This was a harder job than overhauling the benches. The men had been using their own methods so long that they naturally resented any innovations, but after a little housecleaning the desired results were obtained and the benches began to show a decided improvement.

The exhausters, primary and secondary condensers, tar extractor, washers, scrubbers and purifiers were in such a state that it will always be a mystery to me that they continued to function at all. It was found necessary to thoroughly clean and overhaul each unit in order to get anything like satisfactory results, but the comparative statement of results which I have compiled is convincing evidence of the importance of having your equipment clean in order to secure efficiency.

As one instance I might mention the condition in which I found the two tower scrubbers. The back pressure in these units amounted to 24 in., and evidently nothing had been done to ascertain the cause.

On examination it was found that the trays in the primary scrubber were clogged with naphthalene. The introduction of a steam jet for ten hours overcame this difficulty. The second or finishing scrubber was in much worse condition, the naphthalene having become so solidly clogged as to resemble cement. I subsequently learned that it had never been cleaned during its fifteen or sixteen years of service. This scrubber was being fed with ammoniacal liquor, although the men apparently knew that fresh water should be used. They excused themselves, however, by explaining that the water pipe had never been connected, although it was right beside the shell.

The steel purifiers erected outside the purifying house in 1914 are a continual source of trouble during the winter months, due to the oxide freezing. The only remedy I have found thus far is the introduction of a small amount of steam with the gas at the inlet of each purifier, which also assists in the purification of the gas by keeping the oxide moist.

It is quite evident that competent engineering advice was not sought when the primary condenser and purifiers were erected outside the buildings.

Perhaps the most important factor in connection with unsatisfactory service was the condition of the distribution system. tI has never been my experience to observe any worse. In order that the outlying districts might get anything approaching satisfactory service, it was necessary to carry a pressure at the plant of 11 to 12 in., and even this only gave a 1-in. pressure where the transmission was for any appreciable distance. Naturally, the high pressure at points near the works was the cause of numerous complaints, the consumers declaring that the department was selling nothing but wind.

The trunk main supplying the city consisted of about 600 ft. of 10-in. and about one and one-half miles of 6-in. pipe. The major portion of the residential districts were supplied with 2-in. mains, and in a number of streets there were seventy-five to one hundred consumers being supplied from one 2-in. main.

Installing Trunk Mains

In November of last year the manager and I recommended the installation of more adequate trunk mains for the distribution system, and that debentures be issued for approximately $42,000 to cover cost of same. The committee unanimously agreed to this, and after a careful survey of the situation it was decided to install 200 ft. of 14-in., 3,500 ft. of 12-in., 3,000 ft. of 6-in. and 1,300 ft. of 4-in. pipe. About 200 ft. of 10-in. in the plant was replaced by the 14-in. and the old 10-in. was connected into this, along with the new 12-in. This latter main supplies the south section of the city, where two-thirds of the gas is consumed, and the old 6-in. is connected into it in two places, so that it also assists the north section. The new 6-in. pipe is now being laid in the northwest section. The 4-in. pipe has replaced the 2-in.

All the pipes are steel and equipped with Dresser couplings with lead-tipped rubber gaskets, except the 12-in., which has duck-tipped gaskets.

Upon lifting the old 10-in. pipe the reason for the large percentage of unaccounted-for gas was quite apparent. In 100 ft. I discovered no less than 74 holes, ranging in size from 1 to 7 in. in length and ¼ to 1½ in. in width. Since the new mains have been laid we have been able to practically discontinue the use of the booster, it being used for a short

time at the noon hour peak only. We expect to discontinue its use completely when the 6-in. pipes are laid.

Now as to results. The comparative statement herewith renders further comment superfluous:

Gas made—	
July, 1919, to July, 1920....	88,969,100
July, 1920, to July, 1921....	94,872,800
Increase, 1,212 tons.	5,903,700
Coal carbonized—	
July, 1919, to July, 1920....	18,670,405
July, 1920, to July, 1921....	16,244,800
Decrease, 1,605 lb.	2,425,605
Oil used—	
July, 1919, to July, 1920....	88,756
July, 1920, to July, 1921....	29,854
Decrease, 421 tons.	58,902
Coke used in generator—	
July, 1919, to July, 1920....	1,367,095
July, 1920, to July, 1921....	525,070
Decrease, 25 lb.	842,025

Unaccounted-for gas, year 1920.....18.4%
Unaccounted-for gas, June, 1921..... 8.9%

The only new equipment installed during the past year, other than the carbureted water-gas set already referred to, was a coal-unloading system designed for us by Mr. Burnett, and this has worked in a thoroughly satisfactory manner and has very materially reduced our cost of unloading coal.

Small Community Accounting Methods*

An Analysis of a System That Has Proved Itself

By G. H. CLARKE
Secretary Kitchener Light Commissioners, Kitchener, Ontario

Bookkeeping is a record of business transactions. The object of such record is to enable the proprietor to determine at any time the true condition of the business. The number and style of books required depends upon the nature of the business conducted. In many lines of business the principal books are the day book, journal and ledger. In the gas business they are the meter-reading books, gas receipt and disbursement journals and ledger.

Gas revenues are derived from a large number of small bills. Much time is saved in recording these petty accounts by using special column ruling in cash receiving journal. This is also true of the disbursement journal. The ruling should be designed to assist in accumulating records of like accounts with as few entries as possible.

Perhaps the best means of getting an understanding of our system will be to consider the work in its natural divisions.

Billing and Receiving Payments

For the purpose of evenly distributing the work of both billing and receiving payments, we have divided the city into sixteen sections. These sections number from one to sixteen. The streets or parts of streets comprising each section number from one to the full number contained in the section. Each house on street retains its own number. For example: I live at 18 Ahrens Street, West. Ahrens Street is number 6 in section 12. My account is indicated on a card as 12—6—18. The number of sections can be determined by the size of the municipality served. The meter reading cards and consumer's ledger cards follow the same divisions.

*Paper presented at Canadian Gas Association convention.

Cash Receipt Journal

The stubs of bills received are entered into cash receiving journal by inserting index only, the amount paid being entered into a special column of cash receipts. The receiving clerk at end of time on service adds all stubs and proves same with cash on hand.

Some municipalities use a shuttle carriage Boroughs adding machine with sufficient columns to record index of persons making payment and amount paid, viz.: G. H. Clarke, 12—6—18, $4.80. The day's receipts are then posted into the cash receiving journal.

Card Ledger System

We prefer a card ledger system rather than the book form for consumers' accounts. Different clerks are enabled to work at cards at the same time. The ledger card is provided with cut for offset. The cards when posted are set over. When postings for day's receipts are finished they are added on machine. If postings have been done correctly, the amount agrees with cash receipts of previous day. This system eliminates the necessity of taking a trial balance of consumers' accounts at the end of the month, as postings are proven daily.

Arrearage Notice

A handy reference to aid in locating consumers who are in arrears is to have the billing clerk place a small rubber clasp on cards of such consumers, the color of the clasp indicating the time of arrears. Delinquents can in this manner be readily located and suitable dunners or notice of disconnection sent out.

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American Gas Journal

SIXTY-SECOND YEAR

Published Weekly by AMERICAN GAS LIGHT JOURNAL, INC., 150 Nassau Street, New York, N. Y.

ELBERT P. CALLENDER, Pres. S. G. KRAKE, Vice-Pres.-Treas. A. M. GLEASON, Sec'y

WALTER A. FAIRSERVIS, Editor

Subscription $3.00 per year, including postage in the United States, Mexico, Cuba, Porto Rico, Hawaii or the Philippines; in Canada, $4.00; foreign, $5.00—Single Copies, 10 cents

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As the Journal Views It

Canadian Gas Association Meeting

During the past few days the Canadian Gas Association has held its annual convention. There have been gathered at Montreal gasmen not only from the Dominion but also from various parts of the United States. They have heard an interesting series of papers, followed by discussions that have contributed much toward the solving of some vexing problems. The spirit that was displayed by the delegates to the convention, though, was that the pendulum had started on its swing back and the gas companies are facing a period of progressiveness and prosperity.

The convention gave opportunity for the various company representatives to renew friendships and to make new acquaintances that will ripen into friendships. And they heard the other fellows' problems and discussed their own, so that all were fully repaid for the time spent.

The program provided for a visit to one of the most modern gasworks in North America, a plant where there has just been completed an installation that it is expected will help to make gas industry history.

In another section of this issue is given a complete report of the program as it was arranged by the committees and officers of the association. And a large part of this issue is devoted to reproducing a number of the papers that were given. We advise our readers to carefully study the ideas advanced in these papers. They are the result of actual experience and have been carfully prepared by experienced gasmen.

During the convention these papers, together with

numerous others, were read and discussed. It is unfortunate that space will not allow for the presentation of all of the papers, together with the discussions which followed, for they were very enlightening. The program will tell just how enlightening they were.

But the entire convention was not devoted to business. Many side trips had been arranged and other entertainment provided. The convention, too, gave opportunity for many to see some parts of the country that they never before had visited, and in this way helped to broaden those fortunate enough to attend.

These annual gatherings have their place in the conduct of business, and unfortunate indeed is he who cannot attend one or more during the year. But to those who were not able to go to Montreal we recommend that they by all means arrange to attend the American Gas Association convention in Chicago in November. Truly this, too, will provide new enthusiasm and interest in our business for the coming year.

The Dangerous Season

Now comes a period of real crisis for public utilities. From now until Election Day, which in New York State is Nov. 8, public utilities will be the subject of much abuse and unjust attacks. And all of this that politicians may manufacture capital that will mislead their constituents. Why should this be? Simply because the present method of regulating utilities is governed by politics. In New York State, true enough, effort has been made to remove the Public Service Commission from the political field, but enough time has not elapsed to allow for this body to function properly. It is the hope of all connected with public service companies that the ideal situation will soon evolve from what at present is a mass that reeks of the political. The Democrats are watching the Republicans with the hope that some move will be made that will react unfavorably on the latter party, while the Republicans feel that any action they may take will be misunderstood. In the meantime the public utilities must stand by and wait while this comedy of errors is played out.

It would seem, from reports that are heard on all sides, that this situation exists in many other parts of the country, and we must say that it is one of the unfortunate results of our usual method of rushing in without heeding the possible consequences. In other words, we can blame it on the American method.

But despite this situation, gas companies must stand aside and take no part in the election; or, in fact have any association with politics in no matter what guise. Even if in the employ of the company there is some individual who has aspirations for the most minor office, he should not be allowed to indulge his fancy. It would be far better were he to use his time and efforts toward improving his service to his company, and so to the industry as a whole. No matter how big or small a man may be, if he is connected with a gas company he must keep away from politicians and politics. If he doesn't want to, and thinks that it is the business of himself and his own company, then it is for the industry to educate that individual to his duty to the field in which he is providing for himself. If he can't see it, then he will have to change his business.

And exactly as this holds true of gas company men so does it concern politicians. Gas companies should not provide a haven for broken-down politicians who are loud in their claims of special "privileges" but who are really seeking a soft berth for themselves. Gas companies have no desire for special favors, and if a company is so unwise as to attach a politician to its staff, in no matter what capacity, then the rest of the industry has something to say and it should be said in unmistakable words.

The Indeterminate Franchise

It is a splendid argument that J. W. Dana sets forth in his article which is published in this week's issue. His discussion of franchises and what they mean and his suggestion for the substitution of indefeasible street rights is indeed worthy of consideration. There can be no good reason advanced that will overcome Mr. Dana's suggestion.

It is a fact that gas company franchises are looked upon, as indeed are all public utility grants, as something special and as a something that must be taxed to the utmost. And yet the only thing that is granted is freedom from close competition of a company in a similar line of business. But gas companies are experiencing considerable competition from other lines that attempt to supply the same service, and, besides, are continually harassed by politicians who threaten dire things unless their wishes are considered first.

Gas company franchises are valuable, yes, and should be capitalized, for they represent something tangible, but there is no excuse for issuing the indeterminate franchise. This means, as Mr. Dana points out, that the investment of a company must be amortized over the period of the franchise, and that has only one effect: the customers of the company must pay for a franchise in their monthly bills.

We believe that any committee or body that may consider the rate structure should pay particular attention to the question of franchises, and we also believe that Mr. Dana's suggestion carries a great deal of weight and should be seriously thought of by those who are working on this critical question.

Mr. Dana has had a great deal of experience in gas litigation. For the past ten years he has represented the Kansas City Gas Company, of Kansas City, Mo., and the Wyandotte Gas Company, of Kansas City, in the courts, and that he has rendered valuable service, not only to his own clients but to the gas industry as a whole, is shown by the results which he has obtained.

Mr. Dana is a thinker. He has worked out carefully the suggestions he embodies in his paper, and he has made an exhaustive study of the problems that have come before him and which to-day are vitally affecting the gas industry. We commend to all gas company executives a careful perusal of this splendid article.

Sulphur Removal by Oil Washing

(*Continued from page* 183.)

phur in the redistilled oil, and 0.432 per cent sulphur in the saturated oil. These figures indicate the relative ab sorptioon of carbon bisulphide in the scrubbers and its liberation during the steam distillation.

Our experience with the oil washing process for removing carbon bisulphide from coal gas has shown us that the method is feasible, and for a small plant compares favorably with any of the more elaborate systems. As has been emphasized several times, the temperature control is the chief problem to be dealt with. With this matter solved, the whole process then becomes automatic.

Small Community Accounting Methods

(*Continued from page* 186.)

Classification of Accounts

Care should be taken not to open more accounts than are actually required to give the necessary information about the business conducted. The number will depend largely upon the details desired by the proprietor or manager of the company. A new requirement to be considered in making classifications is the data now requested by the Provincial and Dominion Governments for their records re mineral resources and disposition of labor, etc. We submit for inspection a list of the classification of plant and operating accounts now appearing on our ledger. We do not, by any means, claim that our classification is not open for criticism, and hope that same will be given in order that mutual benefit may be derived. Each account is indicated by a number, thus saving the time that would be required to write the name of account in full.

PLANT

No. 1.	1001	Lands.
No. 2.	1002	Buildings.
No. 3.	1003	Gas machinery.
No. 4.	1004	Mains.
No. 5.	1005	Main connections.
No. 6.	1006	Meters.

OPERATING ACCOUNTS

No. 7.	1007	Office equipment.
No. 8.	1008	Utility equipment, autos, wagons, etc.
No. 9.	1009	Tools and instruments.
No. 10.	1010	Stores and supplies.
No. 11.	1011	Stoves.
No. 13.	1013	Power purchased.
No. 20.	1020	Wages.
No. 21.	1021	Machinery maintenance.
No. 22.	1022	Building maintenance.
No. 23.	1023	Main repairs.
No. 24.	1024	Meter setting.
No. 25	1$25	Meter repairs and maintenance
No. 26.	1026	Coal retorts.
No. 27.	1027	Coal—boilers.
No. 28.	1028	Oil.
No. 29.	1029	Coke.
No. 30.	1030	Purification expenses.
No. 31.	1031	Promotion of business.
No. 32.	1032	Collection expenses—meter reading, billing and collecting.
No. 33.	1033	Office salaries.
No. 34.	1034	Office supplies and expenses.
No. 35.	1035	Injuries and damages.
No. 36.	1036	Insurance and taxes.
No. 37.	1037	Gas expense—general.
No. 38.	1038	Complaints.
No. 39.	1039	Non-operating revenues services.
No. 40.	1040	Interest on debentures.

Petty Accounts

A nice way to handle petty accounts is to issue check to cash for an amount sufficient to cover petty accounts for any one month and charge same to petty cash account. Then pay all petty accounts, such as freight, express charges, etc., out of cash on hand. On the last day of month classify these petty accounts and issue check for total amount paid out during the month. In this way all payments are covered by check as voucher.

Supplies and Stores

Perhaps the greatest source of annoyance with which most accountants have to contend is caused by supplies having been purchased without a proper classification order form. This generally happens when supplies are purchased locally for immediate use, whether classification of charges for supplies purchased are made by superintendent, manager or secretary. They can only guess where supplies have been used and where they should be charged when order for same has not been issued. We use numbered order forms issued in duplicate, one copy being given to party from whom goods are purchased, the other being retained for classification purposes. If goods are not purchased for immediate use, the invoice is turned over to storekeeper to check. He then distributes charges an stock cards. When payment is made, goods are charged to supply account.

As supplies are used from day to day, they are entered on summary sheet, and at end of month or any time decided upon, the number or weight of any special line of goods is credited on stock card. The total supplies used in month are then classified and charges made to the different plant or operating accounts or to persons, if goods are sold. The supply account is then credited with the total amount of goods used or sold.

The Indeterminate Franchise

(*Continued from page* 181.)

enables the utility to finance itself on the lowest interest rates; insures full and complete State regulation of rates on the basis only of a fair return, and not the amortization of the entire investment within a fixed term. In fact, the limited term franchise and the policy of State rate regulation are so incompatible and irreconcilable that they both cannot stand together. We believe that the courts of this and other States will ultimately hold that the adoption of the policy of State regulation and the requirement in the statute that the service may not be discontinued without the consent of the commission and that the rates must be reasonable and only sufficient to afford a fair return on the investment, supersedes and repeals all term franchises, and confers, by operation of law, indefeasible street rights.

Again, the term franchise, if duly authorized, may be contractual and suspend the exercise of the power of eminent domain, thus barring the municipalities from purchasing, condemning and acquiring the public utility plants if municipal ownership is desired; while the grant of naked indefeasible street rights is no bar to the exercise of the power of eminent domain and the acquisition of these public utility plants by the municipalities. Public utility property, like all other property, is held subject to the sovereign power of eminent domain and may be taken for public use by due process of law at any time. The Missouri constitution specifically provides that, "The exercise of the power and right of eminent domain shall never be so construed or abridged as to prevent the taking, by the General Assembly, of the property and franchises of incorporated companies already organized, or that may be hereafter organized, and subjecting them to the public use, the same as that of individuals."

Advantages of the Indefeasible Right

Again, the indefeasible right to use the public ways equalizes the cost of utility plant construction between the present and future generations, while the term franchise unjustly overburdens present consumers for plant construction costs for the use and benefit of future larger populations.

It fosters public utility industries and invites capital into the business and into the State.

The indefeasible right to use the public ways, the continuity of the business and the permanent preservation of the integrity of the investment in public utilities is the fundamental principle underlying the whole scheme of rate regulation by commissions. Without it, all attempts at rate regulation are fruitless and the maintenance of the public service commission is a waste of public money, for the reason that a public utility, such as a gas plant, having an investment of $10,000,000 and operating under a twenty-year term franchise, would be entitled to amortize one-twentieth of that investment, $500,000, per year, which amount on an annual volume of 3,000,000,000 cu. ft. sales would require an addition of 15 cents per thousand to the rate affording a "fair return" on the investment. This amount the people must pay for the privilege of the "home rule" politicians having a periodical row with their public service servants.

Term franchises usually carry unreasonable and costly requirements, such as the ancient standard of "candle-power" gas, necessitating the expenditure of much money to make the gas self-illuminant; whereas, in the modern art, gas is used for lighting in the incandescent mantle and is employed almost exclusively for heating, and the British thermal unit in either case is the only proper standard. We are all familiar with some old dinky horse-car line, some obsolete arc electric light lamp or other requirement which costs large sums of money to maintain merely for the purpose of complying with some obsolete provision of a term franchise. All this is ultimately reflected in high rates to the consumer, and would be avoided under indefeasible street rights subject to full and complete scientific commission regulation.

If there be any merit to the term franchise, no one has ever advanced it. No one now defends it. The practice of granting term franchises obtained long prior to the modern policy adopted in some forty-seven States of rate and service regulation. It originated and flourished shortly after the decision in Munn vs. Illinois, where it was held that the courts had no power to review confiscatory rates fixed by legislative fiat and the only relief was by appeal to the lawgivers. It was therefore adopted not as a sane business proposition but as a means of evading the harsh rule laid down in the Munn case in an effort to establish contract rates protected against impairment by the contract clause of the Federal constitution. However, at that time it was not commonly known to the bench and bar, not to mention the general public, that rate regulation was then and is now a sovereign governmental function always reposing in the State, and could not be suspended or bartered away by its municipalities except by clear constitutionally conferred legislative authority. It was also deemed necessary to have these term franchises renewable at frequent intervals so that the municipalities, then vested with power to deal with public utilities, could readjust the rates and service conditions periodically. Thus it appears that under the modern policy of regulating these public utilities by State commissions there is absolutely no excuse for the term franchise.

"Home Rule"

But some will say that to grant indefeasible street rights direct by the legislature would deny the municipalities their right to control their own affairs; would violate that sacred Irish doctrine of "home rule." The answer is that the municipalities never had that right. There is no such thing as an *imperium in imperio* in the American scheme of State governments. The State is the supreme sovereign except such powers as are delegated to the Federal Government. The cities derive all their powers from the State. Undr the general law and constitutions of this and most States, the right to control public utilities and the use of the public ways reposes in the sovereign State. It was only temporarily, and to a very limited extent, delegated by the State to its political subdivisions, the municipalities. All the right the cities had in the premises was to give **"consent"** to the State-created public utility to enter upon the State's public ways within such municipalities. The grant of that right upon the public ways is conferred directly by the State itself. "Any corporation

formed under the provisions of this article, for the purpose of supplying any town, city or village with gas, electricity or water, shall have full power to manufacture and sell, and to furnish such quantities of gas, electricity or water as may be required in the city, town or village, district or neighborhood where located, for public or private buildings or for other purposes; and such corporations **shall have the power** to lay conductors for conveying gas, electricity or water through the streets, lanes, alleys and squares of any city, town or village, with the **consent** of the municipal authorities hereof, and under such reasonable regulations as said authorities may prescribe.

It thus appears that indefeasible street rights come direct from the State; the city was merely authorized to "consent." Certainly it cannot withdraw that consent after millions have been invested for and on behalf of the State in the discharge of this essential business of the State by private parties.

Finally, the granting or renewal of term franchises by municipalities under the modern policy of State rate regulation is misleading to all parties concerned and fruitful of interminable litigation. Any provision of such franchises purporting to fix rates or service is *ultra vires* and disregarded by the State commissions and utilities themselves. Any provisions as to plant construction or extensions are likewise *ultra vires*, as the commissions have jurisdiction of security issues and will authorize only such investments as will afford a fair return and not burden the consumers with preferential and discriminatory service. Any rules, regulations or practices in such franchises relating to rates or service or the standard of measurement or quality of the commodity furnished or service rendered are all matters within the exclusive jurisdiction of the State commission, and therefore may not be included in such franchises. It follows that the only thing the city is now authorized to do is to give its "consent," in the first instance, to the utility entering upon its streets and commencing business; and that cannot now be done without a certificate of convenience and necessity from the commission. It thus appears that the State has very wisely recalled to itself the complete control of this essential industry. This is probably due to the fact that the granting of term franchises by municipalities is one of the greatest causes, if not the greatest, of the notorious failure of municipal governments throughout the United States.

However, there are many public utilities in this and other States operating under term franchises granted by cities, with or without legislative authority so to do, such authority in many cases purporting to have been derived only from freeholder charters and not from legislative authority, and therefore unauthorized and void. Nevertheless, such public utilities find it impossible to finance themselves under these expiring franchises, with the result that they are embarrassed for capital to make needed extensions, betterments and improvements to their plants necessary to the maintenance of adequate and sufficient service at reasonable rates.

It is therefore highly proper that the State of Missouri and all other States should pass curative legislation in some such form as above suggested in legal effect "quieting the title" of its public servants in and to the indefeasible use of the public ways of the State and its municipalities in the proper discharge of the State's public service business.

(Note—In discussion by the association following the reading of this paper it was developed that if the public utilities commission were abolished by the legislature the utilities would not be turned loose to extort unreasonable rates from their customers, but their rates would be subject to regulation either by the legislature or by the cities or by the courts, or some other State agency duly authorized; and that, therefore, indefeasible street rights, if granted by the legislature, would not interfere in any way with the regulation of the rates of the companies, but would, on the contrary, be conducive to and permit of complete and proper regulation of both rates and service, irrespective of where the regulatory power is vested from time to time.)

Method of Venting Gas Ranges*

No Question as to How It Should Be Done

By J. E. NASON, Erie, Pa.

Setting up stoves has probably been the means of making as much money in times past for the jokesmiths as the one about "Why the chicken crossed the road," and yet if a few very simple rules are followed, putting stove pipe on a gas range is very easily done.

There may be some question about when to connect the gas range to a vent, but there can be no question about how it is to be done.

In the writer's opinion a gas range should never be connected with flue pipes except to a suitable chimney, one having a perfect draught, and preferably one not having any coal or wood fire connected into the same chimney.

Care must always be used in the connecting of gas stoves to chimneys, to which coal or wood fires are connected. Cases have been known where gas stoves connected to chimneys which have also had wood fires connected thereto have had serious explosions due to the flame of the gas burner becoming extinguished, permitting the gas to escape up the chimney and coming into contact with a spark from the wood fire.

A chimney that is properly built for gas is one made of brick, lined with suitable tile and which extends above the high point of the roof of the building, and which has no higher buildings erected close enough to this chimney to cause a back draught. If the tile is omitted the mortar for the bricks, in time, will disintegrate, due to the actionof the gas, permitting openings between the bricks, thereby spoiling the chimney draught.

Stove pipe is made of one pass cold rolled black steel or blued steel sheets. The difference in cost between the black and polished steel is but a trifle, and therefore

*Paper presented at Canadian Gas Association convention.

the blued steel sheet, which is from scale, is the preferable material to use, as it is easier to clean and gives the best appearance. Each joint of stove pipe is made with one end smaller than the other end. The large end of the pipe should be placed on the range and the small end in the chimney. This is not always done, and a poor job of fitting is made. Stove pipe elbows are made in a variety of ways, the common type being made in one piece and corrugated. This is undoubtedly the strongest elbow, but has the objection that dust and grease adhere to the corrugations, and is not readily cleaned. The elbow made in four pieces is not as strong as the corrugated elbow, but is far more easily cleaned and is the one preferred by housekeepers. Usually four-piece elbows can be reversed to change the flue pipe in any desired direction, and by carrying this type only in stock all situations can be handled and less variety of parts carried by the storekeeper.

Stove pipe dampers are made of either sheet steel or cast iron. The sheet steel has a tendency to rust out quickly, and therefore the cast-iron dampers are preferable. Only dampers having a center opening, to prevent completely shutting of the vent, should be used.

Flue Openings Provide Proper Vent

The flue openings of gas ranges are designed to give the proper vent, and the same size of vent pipe should always be used as the size of the flue connection of the gas range and continued in this size to the chimney without reducing the size of pipe. If there is excessive draught this can be regulated with the damper. It is decidedly preferable to use as few elbows as possible, as the use of more than one elbow tends to spoil the draught.

The only other fitting required to connect a gas stove to a proper chimney is a fitting to make a tight joint around the flue pipe at the point the pipe enters the chimney.

There are three ways this is generally done, and the first two mentioned are the preferable ones. First, the vent pipe may be cemented into the chimney; second, a sheet metal reducer from the size of the chimney hole to that of the vent pipe may be used; third, a sheet metal collar having a hole the size of the vent pipe and an outside diameter of sufficient size to cover the opening into the chimney may be used. The pipe reducers or collars are standard products.

The writer has seen stoves vented by connecting to a short metal or cast metal pipe which just extended through the building wall, or this pipe even extending upwards to the height of the house. In the writer's opinion, it would be far preferable and much safer to have no vent connection at all than a connection made in this manner, for the reason that the operator, if necessary on account of health conditions, may safeguard the health by opening a window, thereby admitting fresh air, while in cold weather such a vent pipe would have no draught whatever. In times of high humidity such a connection will cause damage by rust, as the moisture concentrates at the flue and runs back on the range.

If the pipe just extends through the wall, no matter what kind of a deflecting cap is used, there will be at some time a back draught. If the pipe in question is extended to the roof, in cold weather, the impossibility of heating such a pipe to start a draught causes the same effect on the stove as if the stove flue was completely blocked off.

A Common Fault

Attention should also be called to a common fault in venting flues, which is the careless manner in which the flue pipe is erected. If the location of the chimney is such that the stove may be connected with only one elbow and a short run of pipe, there is usually only one fault, and that is that the vent pipe entering the chimney may be placed too far into the chimney, thereby preventing any draught, and, in fact, entirely closing the vent to the oven of the range, which will prevent any circulation of heat in the oven and make it impossible to bake.

When a range is connected with vent pipe to a chimney, the mechanic making the installation should in all cases first inspect the chimney to determine if the chimney has a suitable draught. This is best done by being certain there is no accumulation of dirt at the chimney opening and then lighting a taper, holding it to the chimney opening to ascertain if there is a proper draught. In most cases, the flame will be drawn up the chimney. Should there be no draught further investigation of the chimney should be made.

First, ascertain if the chimney is higher than any points of the house. If it is, see if there are any obstructions in the chimney. If there are no obstructions it is possible that there are other flue openings to the same chimney that are not closed or that air is entering between the bricks.

The item of cost of installing a range with vent pipes has been noted as an objection for recommending them. A proper merchandising plan would add this cost to the consumer. There is no more reason for the consumer to expect the stove pipes and fittings with a stove free of charge than that the butcher should throw in the vegetables with the meat, or the furniture man makes no charges for the bed linen when he sells a bed.

Selected to Probe Price of Lawrence Gas

Lawrence, Mass.—William L. Puffer, of Boston, an electrical engineer and former professor at the Massachusetts Institute of Technology, has been unanimously appointed by the municipal council of Lawrence to conduct a probe on the price of gas for which work the sum of $10,000 was recently appropriated.

The appointment of Mr. Puffer took place at a special meeting of the council during which a concession of rates recently offered by the company was refused. The price of gas in Lawrence is $1.70 per thousand cubic feet, with 10 cents off if the bill is paid within ten days, while prior to the war, gas was selling in the neighboring city for between 80 and 90 cents per thousand cubic feet, the increase being close to 100 per cent.

At the special meeting of the Lawrence council, City Solicitor Daniel J. Murphy suggested to the gas company that the reduction offered recently become effective September 1, and that the investigation be conducted just the same, but Attorney Donevan, who represented the company, refused to acced to the demand, stating that the money which would be lost through the reduction will be utilized by the company in defending itself in court.

House Furnace Efficiency With and Without Tank Heater Coils*

Everything Has Its Cost and Its Value

By EDWIN NEWSOME, A.S.S.E.

Editor Sanitary and Heating Journal, Toronto, Canada

There seems to be a lot of people in this world who are ever on the lookout to get something for nothing. This applies somehow to people who, as a rule, ought to know better.

If I came to any man and said "Give me ten dollars, and I will show you in a second how it can be turned into fifteen dollars, without, as a matter of fact, ever changing ownership," what would anyone think?

If I said to any gasman that although the B.t.u. value of gas sold was 500, I could get 600 B.t.u. out of it, what would you think of such a statement?

Very well, if I sold any of you a hot water boiler or furnace, say a number 5 with a heating capacity of 835 sq. ft. of radiation or 2,500 lineal feet of one-inch pipe, an dthen I told you that you could heat a thirty-gallon range boiler from a coil or heater installed, and that heating capacity of the furnace was going to be cut down by 90 to 120 sq. ft., what would you say?

These are some of the questions which should be discussed with every house owner or tenant in whose house a furnace is in use.

Some years ago the average heating engineer, steam or hot water fitter, or whatever you may call him, concluded that to fit a coil in a furnace, said coil to be connected to a range boiler, would enable the owner or occupant of the home to procure an almost unlimited supply of hot water for nothing, the average person swallowed hook and line, and to-day there are hundreds of thousands of coils and domestic heaters so installed in furnaces.

A number of boiler and furnace manufacturers, however, began to give the matter some serious study, and concluded that to install such coils meant adding a load to the furnace. To-day very few of these boiler manufacturers allow such a theory, or, for that mater, practice, to go unchallenged.

In quite a number of fitters' handbooks, published by boiler manufacturers, the attention of the reader is called to the fact that if a coil or heater of any kind is inserted in the fire box of a furnace, a deduction from the rating must be made equal to three square feet of radiation to every gallon of water heated.

Such being the case, if we assume that only thirty gallons of water is used in a day, or that a thirty-gallon boiler is connected to a coil containing one square foot of heating surface, then the heat loss would be equal to ninety square feet of radiation.

It is estimated that most residences are of such a size as to require a No. 4 boiler to heat the interior (the rating of such a size of boiler is about 650 sq. ft.), and as a thirty-gallon boiler is the average size installed, then the furnace capacity for heating purposes has been reduced by at least ninety square feet, or equal to about 15 per cent.

*Paper presented at Canadian Gas Association convention.

But this is scarcely the whole loss incurred. Let us consider another authority on heating—William Hutton, in his book entitled "Hot Water Supply and Kitchen Boiler Connections," writes as follows:

"Cast iron section suspended from fire box crown, and containing one square foot of surface is equal to fifteen square feet of radiation.

"Cast iron sections in contact with fire, one square foot equals fifty square feet of radiation.

"Pipe coil, one square foot equals twenty square feet.

"Pipe coil, one square foot equals thirty-five square feet."

But, this same author goes on to say "as the above readings are based on a flow of water to the radiators at 170 deg. Fahr., and that is about the highest temperature maintained in hot water supply tanks, it may be calculated that for domestic use:

"One square foot of cast iron surface in contact with the fire will heat twenty-five gallons per hour.

"One square foot of iron coil suspended over the fire will heat fifteen gallons per hour.

"One square foot of iron coil about half in contact with the fire will heat twenty-five gallons per hour.

"One square foot of brass pipe coil in close contact with fire will heat thirty to thirty-five gallons of water per hour."

While the above figures are only approximates, they are based upon actual observation, under every-day conditions, and if such figures are anywhere near the mark it is easy to see that to secure such a large amount of hot water is bound to interfere as well as cut down the heat rating of a boiler.

The question of heat loss from range boilers, too must be taken into consideration, and to prove that there is a big loss I will give you one case where my own gas bill averaged 25 per cent less when I covered a range boiler with a good asbestos covering.

What Covering the Boiler Did

We lived in a house where all heating of water and cooking was done by gas. The only coal used was for the furnace, and, by the way, I had no domestic coil in the furnace. My monthly gas bill, previous to covering the range boiler, averaged $6.25 to $6.50 per month, winter and summer, for a family of nine in the house. After I covered the boiler the gas bill dropped to $4.75 and $5. The cost of gas per thousand was $1.20.

The loss of radiation from a range boiler, based upon regular heating surface, is approximately seventeen square feet for a thirty-gallon size, and this amount can be added to, when we consider that the average basement is cooler than any other portion of the house. Most of you know that range boilers are now as a rule placed in the basement.

I am not going to give you any names or addresses

where coils or domestic heaters have been taken out of furnaces, but I can assure you, gentlemen, that during ten years' experience with the tools I have proved conclusively that a domestic coil in a fire box does lower the rating of a boiler or furnace, and, as editor of two trade journals during a period of eight years, I have had lots of experience all over Canada.

About four years ago a real estate agent connected with a trust company called me in to look at the heating systems installed in a number of houses owned by them, which were hot water. These systems were well installed, and I learned that a competitive boiler manufacturer claimed that their furnaces were a certain per cent more powerful, etc. The houses had only been built about six months, and the tenant complained bitterly about the houses being cold. This was in January.

I measured up the houses, arrived at a heat loss, found that the heating specifications had been carried out to the letter. Each house contained 900 sq. ft. of radiation (hot water). Each house had a forty-gallon range boiler, with a well-known gas water heater fitted to same, a double ring, or sectional domestic coil was also connected to each range boiler. I found also that after the furnaces had been decided upon the glass surface had been increased by adding a sun room to the houses. These had to be heated from the same furnace, and this made the furnaces approximately 15 per cent too small.

I at once advised that before changing the furnaces it would be well to take out the domestic coils and see what happened. The coils were taken out, and from that time on the furnaces gave splendid service.

There Are Many Examples

As a matter of fact, I could go on citing case after case where the domestic coil has resulted in as high a heat loss as 20 per cent of a furnace. My opinion is that where a house requires, say, 600 ft. of hot water radiation, a twelve-inch coil will cut down the furnace rating by at the least 120 sq. ft. I know of scores of cases where such has been proved.

I am not, however, condemning the use of a domestic coil in furnaces, but I do object to heating men and those interested in selling coils allowing the public to be deceived.

If the public are told that to install a domestic coil in a furnace means a loss instead of a gain, then I have no fault to find with the domestic coils. And, on the other hand, if where a 600-ft. boiler is needed with, say, 500 sq. ft. of radiation installed to heat a house, and a thirty-gallon boiler is to be heated by, say, a twelve-inch cast-iron coil, then the customer, or builder, should be told that the furnace is being overloaded.

Just imagine, at this present moment, the cost of a hot water heating system averages $1.75 to $2 per square foot of heating surface, including boiler, and say the job requires 500 ft. of radiation, and the boiler is a 600-ft. one. The total cost of such a job would be around $875 to $1,000, and we will assume that a domestic coil is installed with a thirty-gallon range boiler. This latter cuts down the boiler power by about 120 sq. ft., or even based upon figures taken from a number of *Fitters' Companions*, say, 90 sq. ft., is from $157.50 to $180.

How foolish it is to install a domestic coil in the face of such figures, and particularly when such a domestic hot water supply is only available during the winter season.

I suppose most of you gentlemen know why coils do reduce the heating capacity of a boiler. The cold water passing through the coil cools the unconsumed gases, and interferes with proper combustion.

Such a coil also prevents the fire from reaching the first section of the heating surface of a furnace.

The same arguments apply where warm air furnaces are in use. Have any of you gentlemen present observed how very dirty a set of hot water coils gets when such coils are used for combination warm air and hot water heating systems? You will find that not only do the coils get caked and coated with a pitchy coating, but the warm air radiator and smoke ways or fire travels will be found to be heavily coated with soot, etc., and, other than asbestos, I do not know of a more effective heat insulator than soot. These soots are in reality unconsumed fuel, so that it will be clearly seen that any apparatus installed in the fire box of a furnace which interferes with the proper combustion of fuel is a detriment to any heating system, whether for domestic or commercial heating apparatus.

Plans Made for New Plant

Uhrichsville, Ohio.—The preliminary steps necessary for the erection of the Allied Power Industries' great electric, gas and coal atomizing plants were taken when Chief Engineer Ward E. White and associate engineers began laying lines for the foundation for the first unit of the atomizing plant. This unit will have a daily capacity of 500 tons of atomized coal, and other units will be added as fast as needed.

Mr. White explained that atomized coal is coal ground to a fineness that will pass 100 per cent through 200-mesh screen, which is considerably finer than bolted flour.

By grinding the coal to a uniform finensss the size of each particle is definitely known Mr. White explained, and as combustion is simply the chemical union of carbon and oxygen in the proper proportion, therefore if you know the exact size of each particle of carbon you can measure out to in the exact amount of air (which contains the oxygen) needed to cause perfect, complete and absolute combustion. The coal is carried in a flow of air from a fan and is fed through a pipe like a fluid and burns exactly like gas, leaving no soot, smoke or cinder.

The method of feeding the coal is so simple, Mr. White explained, that one man can take care of thirty or forty boilers and then have time to play "put and take." The atomized coal is first put into a hopper. From this it is automatically fed on to a revolving disc which is turned by the fan that blows the coal into the combustion chamber.

By this method, Mr. White says, an ordinary house furnace can be left to attend to itself almost. All that is required of the operator is to see that the hopper is filled with atomized coal occasionally and the little accumulation of slag ash removed once a week.

Atomized coal will be put up in bags like flour so the present dirty methods of handling coal will be done away with.

As the economic production of gas and electricity, which will constitute the chief products of the company, depends upon the efficient use of coal, the atomizing plant necessarily must be completed before the other two enterprises can come into operation.

The company already has tentative contracts for its total output of gas, so this department will be the first to be brought into production.

Public Utilities Securities Market Report

Prices of Representative Gas Bonds

(Quotations furnished by The National City Company)

Company	Issue	Maturity	Aug. 25, 1921 Bid	Asked
American Lt. & Trac. Co.	Five Year 6s	May 1, 1925	91	92
Brooklyn Union Gas Co.	First Consol. 5s	May 1, 1945	83	85
Columbia Gas & Elec. Co.	First 5s	Jan. 1, 1927	84	85
Consol. Gas, Elec. Lt. & Pr. Co. of Baltimore	First Ref. 7½s	Dec. 1, 1945	98½	99½
Consol. Gas, Elec. Lt. & Pr. Co.	General 4½s	Feb. 14, 1935	76	78
Consol. Gas Co. of New York	Sec. Conv. 7s	Feb. 1, 1925	101¾	101⅞
Consol. Gas Co. of New York	One Year Sec. 8s	Dec. 1, 1921	100⅛	100⅜
New Amsterdam Gas Co.	First Consol. 5s	Jan. 1, 1948	65	67
Denver Gas & Elec. Co.	Gen. (now 1st) 5s	May 1, 1949	79	82
Detroit City Gas Co.	Gold 5s	Jan. 1, 1923	90½	93
Equitable Illum. Gas Lt. Co. of Philadelphia	First 5s	Jan. 1, 1928	96	99
Hudson County Gas Co.	First 5s	Nov. 1, 1949	73½	75
Laclede Gas Light Co.	Ref. & Ext. 5s	Apr. 1, 1934	76	77
Louisville Gas & Elec. Co.	First & Ref. 7s	June 1, 1923	95	96½
Michigan Light Co.	First & Ref. 5s	Mar. 1, 1946	68	72
Milwaukee Gas Light Co.	First 4s	May 1, 1927	81½	83
Pacific Gas & Elec. Co.	Gen. & Ref. 5s	Jan. 1, 1942	78	78½
Pacific Gas & Elec. Co.	Col. Tr. Conv. 7s	May 1, 1925	97	98½
Pacific Gas & Elec. Co.	First & Ref. 7s	Dec. 1, 1940	100	100¾
Cal. Gas & Elec. Corp.	Unif. & Ref. 5s	Nov. 1, 1937	84¾	85½
Peoples' Gas Lt. & Coke Co.	Refunding 5s	Sept. 1, 1947	73½	74¼
Chicago Gas Lt. & Coke Co.	First 5s	July 1, 1937	78	79½
Portland Gas & Coke Co.	First & Ref. 5s	Jan. 1, 1940	78	80
Seattle Lighting Co.	Refunding 5s	Oct. 1, 1949	66	69
Southern California Gas Co.	First 6s	Nov. 1, 1950	84	87
United Gas Improvement Co.	Two Year 8s	Feb. 1, 1923	99¼	99½
Utica Gas & Electric Co.	Ref. & Ext. 5s	July 1, 1957	80	83
Washington Gas Light Co.	General 5s	Nov. 1, 1960	76½	77½
Western States Gas & Elec. Co. of California	First & Ref. 5s	June 1, 1941	78	80

Financial Statements

The annual report of the Standard Gas & Electric Company for the year ended June 30 last shows gross earnings of $3,153,312. Of the gross, 97.79 per cent was derived from public utility operations and the balance from the company's oil investments. Gross earnings of subsidiary companies for the twelve months ended May 31 were $34,408,158 and net earnings totaled $11,611,822.

A combined statement of the Utah Power & Light Company, the Western Colorado Power Company and the Utah Light & Traction Company for the year ended Dec. 31 shows a surplus, after charges, taxes and depreciation, of $974,489, compared with $1,012,152 in the previous year. Net earnings after taxes amounted to $4,086,691, against $3,711,039.

Gas Company Plant Sold

Medford, Ore.—At the receiver's sale of the Oregon Gas & Electric Company's plant, held here, the property was bought by the Anglo-California Trust Company of San Francisco for $55,555.50. The bondholders were represented by Thomas D. Patch, receiver, and the trust company by its vice-president and cashier, Louis Sutter. There were no other bids.

The sale included the land and equipment of the gas company in this city, Grants Pass and Roseburg. This includes forty-two acres just south of Medford, one and one-half acres each at Grants Pass and Roseburg.

The company's affairs have been in litigation for a year, and the sale is expected to straighten them out.

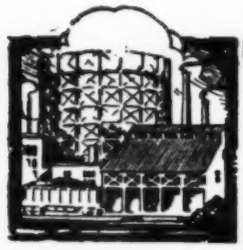
The future plans of the company will not be made public until after a conference, to be held at San Francisco this week.

Fails to Sell Gas Bonds

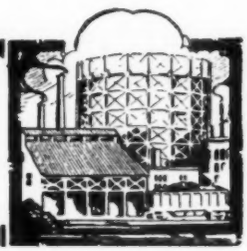
Orangeburg, S. C.—No bids were received for the $100,000 worth of bonds which were to have been sold, or bids to have been received. In fact, no bids were received at all by the local city council. Several firms made inquiries about the sale of the gas bonds, but from information they did not want to pay par.

There was also presented to city council a petition, signed by about 227 property owners in the city, asking council not to sell any more bonds for municipal improvements until the bonds can be sold for 5 per cent interest. Nobody presented the petition in person, but it was handed to the city clerk. The petition was received as information.

The next municipal election, which will be held Sept. 6, will be interesting, especially from this point, as it is being rumored that several candidates are against the proposed bond sales until the bonds can be sold at a lower interest rate than those previously sold, or at a rate of 5 per cent. It is thought the next council will have to decide.



NEWS OF THE GAS INDUSTRY



Large Attendance Marks 14th Annual Connvention

Canadian Gas Association Holds Enthusiastic Gathering

Montreal, Canada. — Representatives of practically every gas company in the Dominion and many prominent gasmen from the United States were present at the fourteenth annual convention of the Canadian Gas Association, held at the Windsor Hotel, Thursday and Friday, August 25 and 26. There was great enthusiasm manifested over the reading of the many excellent papers, some of which are to be found in full elsewhere in this issue. Among the many interesting features of the convention was the motion picture reel entitled "The Spirit of Service," produced by the American Gas Association for the use of local gas companies. On Friday, an automobile trip was conducted to the La Salle Gas Works to inspect the new Glover-West vertical retort system of gas making. Everyone attended the annual dinner, which was informal and included a visit to the Venetion Gardens for the Night Show. The ladies were well taken care of, there being many affairs planned for their especial entertainment. The program follows in full:

PROGRAM

WEDNESDAY, AUGUST 24, 8.30 P. M.

Executive Committee Meeting

THURSDAY, AUGUST 25.

9 to 9.45 A. M.—

Registration of members and friends at convention headquarters, Windsor Hotel, in anteroom, convention hall.

10 A. M.—

1. Meeting called to order by the president.
2. Opening address.
3. Minutes of last meeting.
4. The executive committee's report.
5. The secretary-treasurer's report.
6. President's address.
7. Appointment of nominating committee for election of office bearers for 1921-22. (Report of nominating committee presented Thursday afternoon session.)
8. Reading and discussion of papers.

1 P. M.—

9. Meeting adjourned for luncheon.

2.20 P. M.—

10. Convention photo in front of Windsor Hotel.

2.30 to 4.30 P. M.—

11. Reading and discussion of papers continued.

6.30 to 7 P. M.—

12. Annual dinner, followed by visit to the Venetian Gardens for the Night Show, this being cabaret and dancing. Refreshments served.

Annual dinner tickets $2.50 each.

FRIDAY, AUGUST 26

9.45 to 10.30 A. M.—

1. The Spirit of Service, being a motion picture reel, produced by the American Gas Association for use by local gas companies.
2. Operation of the Glover-West vertical retorts, shown by moving pictures. These films were run off in Convention Hall, and ladies were invited to be present.

10.30 A. M. to 12.30 P. M.—

3. Reading and discussion of convention papers.

On Friday afternoon there was a visit to the La Salle Gas Works.

Ladies on Friday were taken on an auto trip to one of the popular resorts near Montreal, where light refreshments were served, and they then returned to the hotel in time to meet the gentlemen, who were taken by motor to the gas works.

TECHNICAL PAPERS

1. "Sulphur Removal by Oil Washing," by E. R. Hamilton, superintendent, gas department, Nova Scotia Tramways & Power Company, Halifax, N. S.
2. "House Furnace Efficiencies With and Without Tank Heater Coils," by Edwin Newsome, editor, *Sanitary and Heating Journal*, Toronto.
3. "Gas Connections Under Pressure," by H. Osler, Montreal Light, Heat & Power Company, Montreal.
4. "Service Costs in Gas Rate Structure," by L. R. Dutton, divisional manager, Jenkintown, Pa.
5. "Accounting Methods in a Small Gas Company," by G. H. Clarke, secretary, Kitchener Light Commission, Kitchener, Ont.
6. "Improved Results at St. Thomas, Ont.," by R. Christie, superintendent, Gas Department, St. Thomas, Ont.
7. "High Capacity Consumers' Meters," by E. J. Turley, Montreal Light, Heat & Power Company, Montreal.
8. "Venting of Gas Appliances," as follows:
   1. "Automatic and Tank Heaters," by George Hobbs, Ruud Manufacturing Company, Toronto, Ont.

2. "Radiant Gas Fires," open discussion
3. "Gas Ranges," by J. E. Nason, Erie Stove & Manufacturing Company, Erie, Pa.

OPEN DISCUSSION ON THE FOLLOWING QUESTIONS

1. What steps can the association take towards procuring for gas companies a better standard of gas oil?
2. What possibilities are before us as to gas stove manufacturers increasing the efficiencies of gas range ovens?
3. What is being done to stimulate new interest in gas lighting?
4. Is gas street lighting being carried on by any of the Canadian cities, and under what contracts?

ANNUAL DINNER

The annual dinner given at the Windsor Hotel, Thursday evening, was of an informal character. Tickets were $2.50 each, and could be procured from the local chairman of the entertainment committee. Mr. C. O. Slimpin, or from the secretary of the association.

AUTO TRIP FOR LADIES

The auto trip arranged for the ladies on Friday was in charge of the local entertainment committee.

AUTO TRIP TO THE GAS WORKS

The auto trip to the La Salle Gas Works (where inspection was made of the new Glover-West vertical retort system of gas making) left Windsor Hotel, afternoon of Friday, August 26, following ladies' return from their auto trip.

RETURN TRIP BY BOAT

Many delegates returned to Toronto by boat, which left Montreal Saturday, August 27, at noon—daylight saving time.

Hartford Starts Fight on Gas Rate

Hartford, Conn.—Hartford officially began what promises to be a bitter fight for the abolition of the present service charge of 50 cents a month imposed upon consumers by the Hartford City Gas Light Company, when the board of Aldermen passed a resolution asking the Public Utilities Commission of the State to summon before it representatives of the gas company to show cause why the service claims should be continued.

In anticipation of the action by the City Government, the board of directors of the gas company announced a reduction in rates from $1.10 per 1,000 ft. to $1 per 1,000 ft., to become effective on October 1. The announcement of the decrease, however, did not deter the board of aldermen from action long discussed.

In urging the abolition of the service charge, Hartford is waging much the same fight as is Providence at the present time. The charge was put into effect despite the almost universal protest of Hartford citizens, and complaints from various civic organizations crystallized into the passage of the resolution tonight.

The resolution requesting an investigation of the necessity of the service charge was introduced by Alderman Daniels, a prominent insurance man of the city, and was passed by a large majority after several members of the board had expressed the opinion that the service charge was an imposition on the people of Hartford.

The cases of Providence and Hartford are parallel. As was in Rhode Island, the Hartford Gas Company filed a new schedule of rates with the State Public Utilities Commission, providing for a service charge of 50 cents a month, and a sliding scale of rates per thousand cubic feet of gas, according to the amount used monthly.

A comparison with prices paid elsewhere in New England and the Eastern seaboard States has shown that Hartford has been paying more for its gas than most other cities. It is the claim of many of the advocates of lower rates for Hartford that rates in many other cities which do not have the service charge are less than the thousand-foot rate for this city, which also pays a service charge.

Gas Rate Increased from $1.80 to $2.45

Stillwater, Minn.—Gas rates in the city of Hudson have been increased from $1.80 per thousand feet to $2.45. The order making the increase was made by the railroad and warehouse commission of Wisconsin.

The new rate is now in effect.

The above figures were based on the operation of the Stillwater gas plant of the Northern States Power Company, which furnishes the city of Hudson with that commodity.

Annual Meeting of M. G. A., Detroit, Sept. 29-30

Detroit, Mich.—The Hotel Statler will be the scene of the annual meeting of the Michigan Gas Association on Sept. 29 and 30. The business program is being prepared with great care and will offer something beneficial to every member. Business sessions will be held on the morning and afternoon of Thursday, Sept. 29, and on the morning of Friday, the 30th. They will start promptly, and it is hoped that as many members as possible will arrive in Detroit the day before and register that evening, if possible. A printed card showing schedules of rates may be had upon application to the hotel management, and it will be advisable to make your reservations early.

Crisis Passed at Springfield, Ill.

Springfield, Ill. — Springfield's municipal crisis — a threatened shutdown of the power plant of the Springfield Gas & Electric Company—apparently has passed with an announcement that the company would accept the twenty-year franchise offered by the city.

With apparent relief in sight the city council in a statement declared that its offer of a new franchise was not in the nature of an exclusive grant and that development of the municipal plant would continue regardless of the new franchise.

In the meantime arguments for injunction suits to thwart threatened shutdown as a result of the utilities war between the city and company began in Judge E. S. Smith's court.

Development of these new angles in the case occurred on the eve of an election on the question of purchasing the company's plant or developing the municipal plant.

The injunction suits in Judge Smith's court were continued when it was aparent that the crisis would pass without an order from the court.

Shale Oil Business Steadily Progressing

The Columbia Oil Shale & Refinery Company, at Grand Valley, Col., is to establish a hydroelectric plant. Grand Valley is in the region of Debeque, where the shale oil business is steadily progressing.

Personnel of Gas Purchase Committee Now Complete

Houston, Tex.—The citizens' committee to investigate the financial status of the Houston Gas & Fuel Company, with the view of arriving at a reasonable price for city purchase, has been completed by Mayor Holcombe.

Mayor Holcombe appointed W. S. Hunt, local attorney, as chairman of the committee some time ago. Mr. Hunt was to assist the Mayor in the selection of other members of the investigating body.

The committee consists of the following members: C. L. Kerr, H. C. Walters, M. E. Tracy, L. A. Hoskins and E. E. Sands. Chairman Hunt has not announced the first meeting of the body.

File Petition for M. O. Plant

Lowell, Mass.—An initiative petition calling for the establishment of a municipal gas plant was filed with the city clerk Aug. 15.

Long quiescent, this petition came to life not long ago, and it is thought because of the defeat of the paving-by-contract proposition, voted on last Tuesday, it was resurrected and duly filed.

It holds over 4,000 names, it is said unofficially, and it will be turned over to the election commissioners for the certification of signatures. The city clerk must first count the names, and he will keep a record of these.

The petition asks that the municipal council vote to establish a gas plant here, to be municipally owned and controlled, or to take the plant of the Lowell Gas Light Company.

In the case of the paving-by-contract initiative petition, filed some weeks ago, but three days and a little over were needed for the certification of the signatures. The same number, slightly over 3,000, will be required to validate the gas lighting plant initiative, and in all probability the required number will be forthcoming. If it is found that there are not enough good signatures on the papers now in hand, then petitioners will be given a reasonable length of time in which to secure more.

In view of the action taken by the municipal council on the paving initiative, whereby the members passed it along to the electorate at a special election, it is believed that the same action with the most recent petition will be taken. Unless this special election can be combined with the charter election on Oct. 18, still another special election must be held this fall, for it will not be possible to have the gas plant initiative passed along to the general election in December.

If an initiative petition is duly filed within ninety days of a general election, then, according to the charter, it shall go on the ballot at that general election. However, the initiative filed cannot be stretched to come within that ninety-day limit, and must have its own special election.

The cost of such an election will be well over $5,000; and unless, as aforesaid, it can be combined with the special election to take place on Oct. 18 to settle the charter question, the third special election of the year is in prospect.

The charter matter will go to an election definitely settled in a bill passed by the legislature, and it is presumed that that question and that alone can be settled on that date.

The petition filed had inception shortly after the strike of gashouse workers in May. It was started shortly after that time and much of it was made for several weeks. Latterly it seemed to have dropped out of sight. It is apparent that there was renewed activity in the matter within recent weeks.

Gas Company Asks 65-Cent Increase in Rates

Moberly, Mo.—The Moberly Light & Power Company has served notice on all gas consumers in the city that it has applied to the State Public Service Commission for a horizontal increase of 65 cents in all gas rates.

The company has asked that the rates be put into effect September 16, and notifies consumers that if they wish to file objections with the State Commission they must do so in writing at least ten days before September 16.

The new rates proposed increases the cost of gas from $1.30 for the first 5,000 cu. ft. to $1.95 under the new rate. This is the gross figure, a discount of 10 cents a thousand is granted on all bills paid before the twentieth of the month following the month in which the gas was used. Failure to pay by that date imposes an addition of 10 cents a thousand as a penalty.

The proposed new rates are, as was said previously, a flat horizontal increase of 65 cents and not a percentage increase. When figured as a percentage it ranges from a 54 per cent increase on the first 5,000 cu. ft. to a 108 per cent increase on all over 50,000 cu. ft. when figured on the net instead of the gross rate. On the gross rate it ranges from 50 to 94 per cent.

The minimum bills for those who use less than the amount in the various schedules remain unchanged and range from 55 cents to $5.

George H. Dawson, manager of the company, explained the request for an increase by saying:

"We regret that we are compelled to do this, for with prices of other things falling since the war the public naturally sees no need for such an increase. However, we have been operating at a loss for the last year and a half, but have held on to the old rate in the hope that the price of labor and material would come down. It has not, so we are compelled to make this change."

The difference in the old and new schedules, giving the gross rate only, is:

	Old Rate	New Rate
First 5,000 ft.	$1.30	$1.95
Next 5,000 ft.	1.20	1.85
Next 5,000 ft.	1.10	1.75
Next 10,000 ft.	.95	1.60
Next 25,000 ft.	.80	1.45
All over 50,000 ft.	.70	1.35

The net rate, allowed when the bill is paid before the 20th of the following month, is 10 cents lower in each case.

Federal Judge Rules that Coal Companies Must Pay

Unless the defendant companies—the Yankee Fuel Company, a Trinidad Corporation; the New Mexico Coal Company, and the Superior Coal Company—pay to Trowbridge Callaway and Robert Lawrence, bondholders, the sum of $4,137,777.92 within five days, a foreclosure sale will be held at the Trinidad courthouse Sept. 26, so ruled Judge Robert E. Lewis in the Federal District Court of Denver Aug. 16.

The amount of $4,137,177.92 represents principal and accrued interest on bonds originally valued at $2,500,000. The bonds were issued in October, 1906.

Attorney De Steel De Lappe, of Denver, is appointed special master in the case.

Gas Co. Will Enlarge Plant if Order Is Upheld

Asheville, N. C.—That every effort will be made to secure the necessary funds and carry out the improvements and enlargement of the plant and mains by January 1 of next year, so that ample service may be given patrons, is the statement of H. W. Plummer, manager of the Asheville Power & Light Company.

The order of the State Corporation Commission, granting the company permission to raise its rates from $1.60 to $2.20 per thousand cubic feet contains the above provision, and Mr. Plummer states that if the order is permitted to stand, the work of extension and enlargement of the mains will begin at once.

The new rate, an increase of 37 per cent, is said to be higher than that of other cities in the State, but it is not yet known whether the city will appeal from the commission's ruling.

Completion of the installation, now under way, of the new gas holder, of 200,000 cu. ft. capacity, by September 15, was predicted by Mr. Plummer. Other extension and enlargement work now under contemplation will be begun, if the order of the commission is permitted to stand, he said.

Street Lighting Cheaper

St. Louis, Mo.—The total cost of lighting the city's streets and parks for the coming year will be considerably lower than last year, it was shown when the Board of Public Service opened bids for next year's street-lighting contracts. The bids of the Laclede Gas Light Company for furnishing the gas and that of the Union Electric Light & Power Company for the city's electric lamps were the same as last year's, but the bid of the Welsbach Street Lighting Company of America for the maintenance of the gas lamps was far below the estimate.

It was estimated that the Welsbach company would charge $438,000 for taking care of the city's gas lamps, and this estimate was based upon last year's contract price. The bid submitted by the company, however, showed that the maintenance of the lighting system this year will cost the city only $378,548.52, which is nearly $60 000 below the estimate. The Welsbach company maintains the system, lights the lamps every evening and takes care of the equipment.

Drill Gas Well

Falconer, N. Y.—The Gerry Oil & Gas Company is drilling a well on the Holmquist farm, between Gerry and Levant, and, according to J. H. Atwater, 821 North Main Street, Jamestown, vice-president and general manager of the company, at a depth of 2,730 ft. has a promising supply of gas.

A well was drilled on this farm some twenty years ago, Mr. Atwater states, but nothing was ever done with it. The company holds a large number of leases and intends to drill other wells. Henry N. Miller, Buffalo, is president of the company.

Queens Gas Raise Denied

New York City.—The Public Service Commission has denied the application of the Queens Borough Gas & Electric Company for an increase of rates. The company, which serves the residents of the Fifth Ward, Queens, and parts of Nassau County, filed schedules on July 19 providing for an increase in Queens of from $1.15 per 1,000 cu. ft. to $1.50, with a minimum charge of $1 a month instead of 40 cents. In Nassau County the company sought to increase its rates from $1.40 to $1.50, with a minimum charge of $1 a month instead of 40 cents.

The commission investigated the financial affairs of the company and found it made a return of 7½ per cent on its investment for 1920. Taking the figures for the first six months of 1921, the commission's experts found the indications are that the return for 1921 will be even larger than in 1920.

Operates on a Co-operative Basis

Centralia, Wash.—A commercial coal mine a few miles west of here has solved the industrial problem brought about by the state-wide strike of miners by reopening on a co-operative basis, according to S. A. D. Foron, the president. Many miners, he said, had gone back to work, taking shares of stock in the company.

Higher Rate if Improvements Are Made

Asheville, N. C.—The Corporation Commission of North Carolina has handed down a decision in the Asheville Power & Light Company's appeal for higher gas rates, granting the company that permission if certain improvements and additions are made on its present facilities as will enable it to render service which will conform to the standards of the commission. These improvements are to be made before Jan. 1, 1922, at which time the company will be permitted to increase its gas rates to $2.20 per 1,000 cu. ft.

Will Continue Service Charge

Middletown, Conn.—J. Gordon Baldwin, secretary and treasurer of the Middletown Gas Light Company, says the local company is not contemplating any reduction in the gas service meter charge. The Hartford Gas Company is discussing a reduction of its gas service meter charge from 50 cents to 35 cents. The charge in this city is 75 cents.

Mr. Baldwin said that the company has not discussed any reduction of rates, but when prices get back to normal there would be a reduction. He said that the cost of production of gas was just as much to-day as it was a year ago. The only item in the manufacture of gas that was cheaper was oil. Labor is just as high as it has been, he said.

Appointed General Manager

B. D. Harriman, formerly manager of the New Bern (N. C.) Gas & Fuel Company, has been appointed general manager and engineer for both the New Bern and Goldsboro gas and fuel companies, S. W. Brown, formerly engineer at New Bern, having resigned.

Mr. Harriman is an indefatigable worker, and through his efforts has brought the Goldsboro plant up to a high state of efficiency. We wish him continued success in his enlarged field of operation. Both New Bern and Goldsboro are fine prospects with Harriman's ability.

Offering Preferred Stock

New York City—Spencer Trask & Co., New York, Albany, Boston and Chicago, and Chase & Co., Boston, are offering $2,500,000 Consolidated Gas, Electric Light & Power Company, of Baltimore, 8 per cent cumulative preferred stock, Series A, at 100 and accrued dividends. The New York Stock Exchange was notified of the company's intention to increase the preferred stock by this amount.

Gas Land Held; Prices Go Up

Natural gas companies are holding great expanses of undeveloped lands in West Virginia while boosting rates to consumers, the Wheeling (W. Va.) *Intelligencer* finds in a survey just completed.

The company owning the most of this undeveloped land is the Hope Natural Gas Company, which supplies gas to the East Ohio Gas Company for distribution in Cleveland and its suburbs.

The East Ohio asks an increased rate of 60 to 75 cents a thousand cubic feet, with $1.50 minimum charges in Cleveland. It bases this demand on the fact that the Hope Company has raised wholesale rates from 23 cents a thousand to 30 cents. Both concerns are owned by Standard Oil.

Of 3,318,896 acres of West Virginia lands owned or held under lease by seven companies, 1,028,870 acres are controlled by the Hope Company.

Only about 1,000,000 of this gas land has been developed, the survey finds, the other 2,000,000 acres lying idle. The survey also found that the 1,000,000 were but partially developed, and are far from being exhausted of gas.

The Hope and East Ohio gas companies base their claims for higher rates on the grounds that the West Virginia field rapidly is becoming exhausted. They claim higher rates will cut consumption. Increased consumption, however, has followed in Ohio towns where rates have been boosted.

The survey charges that the seven gas producing companies of West Virginia acquired the lands for about $6,500,000, but hold them at an appraised valuation of $60,000,000.

"Consumers," says the survey, "have to pay the rentals on this vast and undeveloped territory, being in round numbers about $2,000,000 per year exclusive of royalties paid on developed lands.

"The West Virginia Public Utilities Commission permits the gas companies to charge this rental expense to their general expense account which must be paid by consumers.

"It simply means that the consumers are compelled to pay for the building up of a monopoly so that in later years their children and their children's children will have to pay a high rate for gas.

"The consumers receive no benefit from these leaseholds. It is an unfair charge on the consumers, but that is of little moment to the Public Service Commission, which can see only the interests of the gas companies and are blind to the rights of the public.

"There is no reason why the consumers should pay for something which only enhances the values of the gas companies. They are called upon to pay enough in the way of operating expense for these companies without adding the rentals of leaseholds, something which is detrimental to the expansion of the gas industry.

"In its decision granting the Hope Natural Gas Company the right to increase its rates the Public Service Commission touched upon the matter of leaseholds of that company in the following manner:

" 'It may be pertinent to suggest in this case, however, that the annual rental charges for carrying gas leaseholds have been charged and are properly chargeable to expense of operation, and as such have been paid by applicant's consumers. And if by reason of any long tenure thus obtained such leases have acquired any values in addition to the original cost, whether speculative or otherwise. It would seem that in equity and good conscience applicant's patrons and consumers, who have contributed through rates for annual rental charges many times the sum originally expended in acquiring such leases, should be entitled to share equally with the applicant in the benefits arising therefrom.'

"What is true of the Hope Natural Gas Company is true also of all the other large companies.

"These leaseholds make it impossible for a competitor to enter the natural gas field on a large basis because the available territory is practically all under lease.

"If the gas companies wish to make natural gas appear as a most valuable commodity, they simply curtail their development and the production will naturally decrease; they can slacken up on their well drilling, knowing that they hold all the territory necessary to prevent outside development of any magnitude.

"Then, when they obtain the increase in rates granted them by the people's protector, the Public Service Commission, they can automatically extend their development by drilling a greater number of wells and increase the production to whatever amount may be desired—a policy which can be carried out *ad infinitum* with always the certainty of success."

Receivers for Gas Company

Philadelphia, Pa.—John F. Lightfoot and David Philips were appointed receivers of the Girardville Gas Company, which has an office at No. 1014 Chestnut Street and a plant up the State. The suit, in common pleas court No. 5, was by bond and stockholders, including John J. Tyler, Charles R. Adams and Daniel F. McConnell. The receivers' bond was fixed at $15,000.

Lawyer H. Horace Dawson, who filed the application for a receivership, said the company defaulted in the payment of the coupons falling due on its thirty-year gold bonds on May 1 last, and that the company was also indebted on open accounts to the extent of $15,000.

29,000 Pay Gas Bills Through a Department Store

One service which a department store in Chicago provides its customers is the privilege of paying their gas and electric bills in the store. In one month 29,000 bills were paid, the total amount of money taken in reaching $64,000.

Seek to Break Gas Contract

Cleveland, Ohio.—This city is planning to break the East Ohio Gas Company's contract with the Hope Natural Gas Company of West Virginia by carrying the case to the Interstate Commerce Commission. The city charges that the East Ohio pays the Hope people too much for gas supplied in this region. Both companies, the city alleges, are owned by the Standard Oil Company of New Jersey.

This fight is developing because of the East Ohio's demand for a 70-cent gas franchise. The present rate per thousand feet is 35 cents.

Lakewood and West Park, Cleveland suburbs, have signed separate contracts with the East Ohio for the higher rate.